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BETWEEN DECLINATION $+75°$ AND THE POLE.

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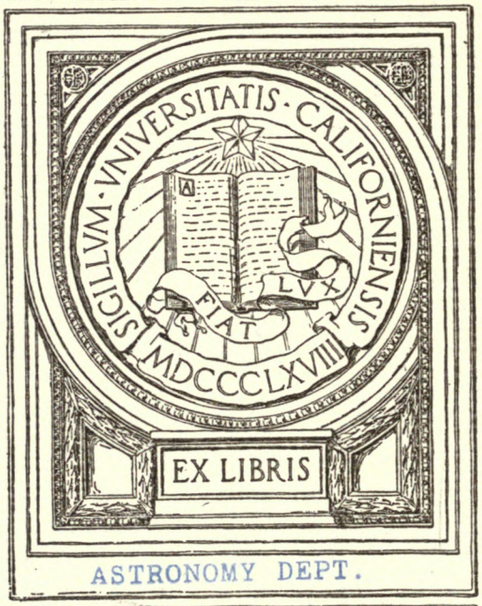

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PHOTOGRAPHIC MAGNITUDES

OF

STARS BRIGHTER THAN $9^{m}\cdot0$

BETWEEN

DECLINATION +75° AND THE POLE

DETERMINED AT THE

ROYAL OBSERVATORY, GREENWICH

UNIV. OF CALIFORNIA

UNDER THE DIRECTION OF

F. W. DYSON, M.A., LL.D., F.R.S.,

ASTRONOMER ROYAL.

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PHOTOGRAPHIC MAGNITUDES OF STARS
DOWN TO THE 9TH MAGNITUDE.

DEC. +75° TO +90°.

INTRODUCTION.

1. This volume contains the first part of a catalogue of Photographic Magnitudes of the Brighter Stars in the Greenwich Section of the Astrographic Catalogue (Dec. +64° to +90°). It owes its inception to the need for supplementing the work being done with the Astrographic Refractor, which is unsuitable for the comparison of stars brighter than the 9th magnitude with Professor Pickering's Polar Sequence, on account of the smallness of its field and the scarcity of suitable comparison stars. There is but one star brighter than 9·0 (B.D. 89° 3, Mag. 8·9) within 60′ of the pole, and thus a telescope with a larger field is required for the determination of the magnitudes of stars brighter than $9^{m}\cdot0$.

2. *The Lens.*—The lens which has been found suitable for the work is a Cooke Astrographic Triplet of 6 inches aperture and 27 inches focus, designed to cover a field of $7\frac{1}{2}°$ radius. When stopped down to 3 inches aperture there is no sensible distortion of the star images up to a radius of about 3°. A field of 6° square has been used, so that three-quarters of the images measured are within 3° from the centre, and the extreme distance is not more than $4\frac{1}{2}°$. Photographs of stars taken with a prism placed before the lens showed that the colour correction was very good from K to H_{β}.

Ilford "Empress" plates have been used on account of the fineness of the grain; they are sensitive from the extreme ultraviolet to H_{β}. They are 16 c.m. square, but only the central portion has been measured. For convenience of arrangement and identification of the stars a réseau of lines 5 m.m. apart was imprinted on the plates before development.

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3. *Programme of Observation.*—The Greenwich section of the sky was divided into 6° zones of declination, and the centres of the fields photographed were taken at such intervals that the centres of the southern limits of two adjacent plates were not more than 6° apart.

The following table shows the positions of the plate centres :—

Dec. of Centre.	R.A. of Centre.					
°	h	h m	h m	h m	h m	h m
90	0,	3 0,	6 0,	9 0,		
87	0,	3 0,	6 0,	9 0,	12 0,	15 0, etc.
84	0,	2 24,	4 48,	7 12,	9 36,	12 0, etc.
78	0,	1 30,	3 0,	4 30,	6 0,	7 30, etc.
72	0,	1 0,	2 0,	3 0,	4 0,	5 0, etc.
66	0,	0 48,	1 36,	2 24,	3 12,	4 0, etc.

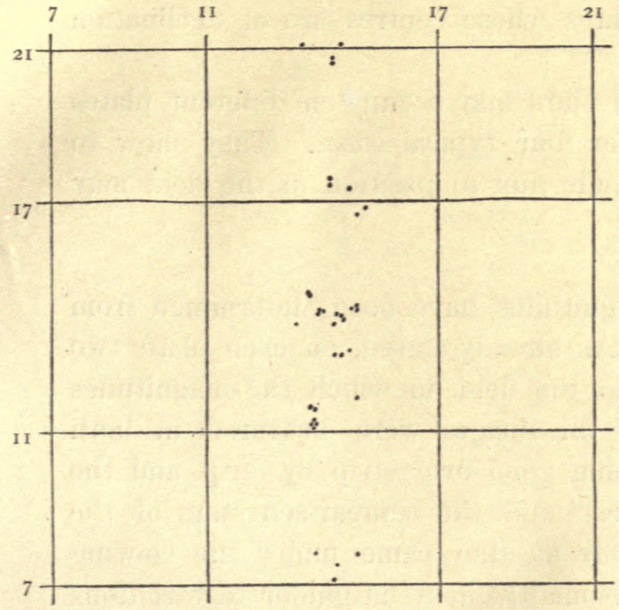
Each field was photographed when at the same altitude as the pole, and the polar area containing Pickering's standards was photographed immediately before or immediately after, on the same plate, with an exposure of equal length. No rule was adopted as to the order of the exposures, sometimes the pole and sometimes the field being photographed first, economy in time being the only consideration. Two exposures were given to both field and pole. In the earlier plates these were 4 minutes and 2 minutes, but in the later plates generally both were of 4 minutes, although in a few cases when time pressed or when the sky was not quite dark two exposures of 3 minutes were given. These exposures were sufficient to give black images of the 9th magnitude stars, suitable for measurement of diameters.

Moonlight nights were found to be unsuitable for the work, as the darkening of the film tended to spoil the hard edges of the images, making them less definite and consequently measurable with less certainty.

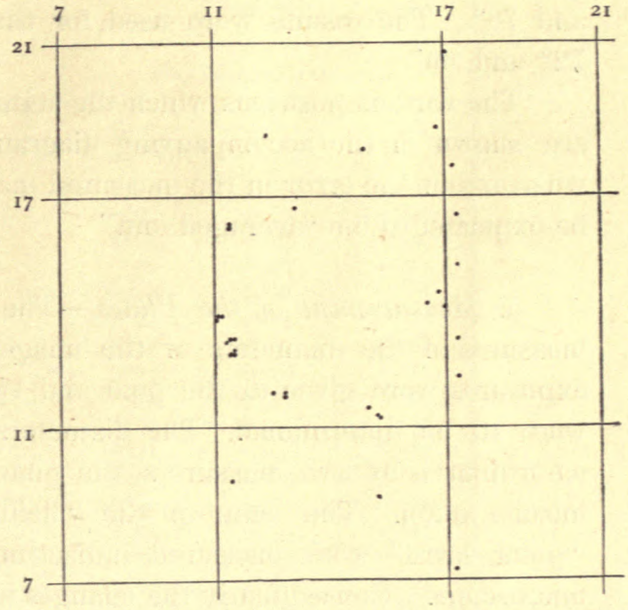
4. *Additional Standards.*—It was found to be desirable to amplify the number of stars of the polar area available for purposes of comparison so as to include all stars brighter than $9^{m}\cdot0$. In the first instance this was attained by making three exposures on the same plate with the telescope pointed at the pole and at 3° on either side. Four such plates were taken with the telescope set at Right Ascensions 0^{h}, 3^{h}, 6^{h}, and 9^{h} respectively, so that each star was brought into from 8 to 12 different positions relatively to the axis of the lens. The magnitudes of about 100 stars were thus determined. Using these stars as standards the programme of comparing other fields with the pole was proceeded with. This work necessitated the measurement of the standards many times, and furnished material for the revision of the adopted magnitudes. In order that the same stars should not always fall in the same part of the field, the exposures on the

DIAGRAMS showing the position of four standard stars on different plates.

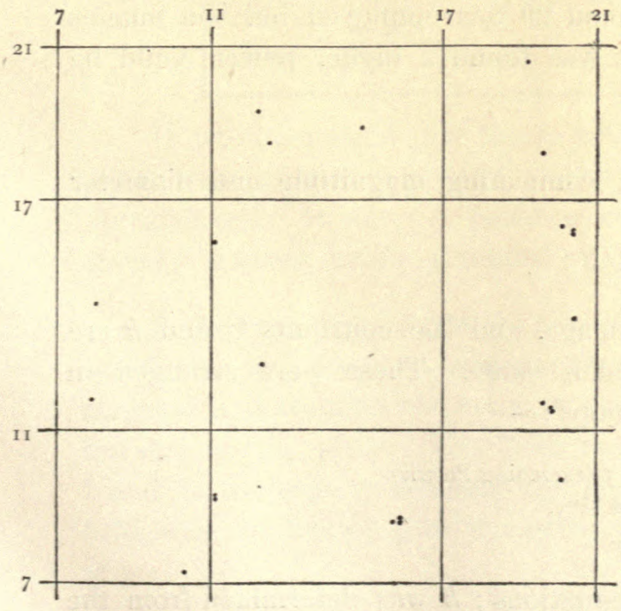
B.D.+89° 3.
R.A. 3h 19m. Dec. +89° 41′.



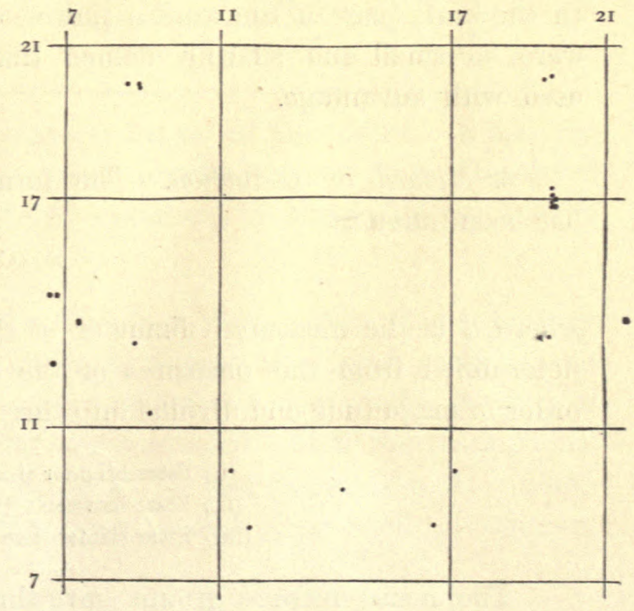
B.D.+88° 4.
R.A. 0h 56m. Dec.+ 88° 29′.

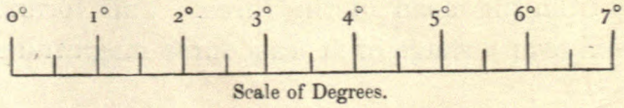


B.D.+87° 51.
R.A. 6h 54m. Dec. +87° 12′.



B.D.+86° 269.
R.A. 18h 5m. Dec. +86° 37′.





Scale of Degrees.

polar area were made with the telescope pointing 1° from the pole and at various right ascensions—generally the right ascension of the field compared. This revision of the secondary standards was made at the conclusion of the reduction of the measures of the plates whose centres are at declination 84° and 78°. The results were used for the plates whose centres are at declination 72° and 66°.

The various positions which the standard stars may occupy on different plates are shown in the accompanying diagrams for four typical cases. They show to what extent the error in the measured magnitude due to position in the field may be expected to be "averaged out."

5. *Measurement of the Plates.*—The magnitudes have been determined from measures of the diameters of the images. As already stated, on each plate two exposures were given to the pole and two to the field in which the magnitudes were to be determined. The diameters of the images were measured in both co-ordinates by two measurers, the plate being gone over strip by strip, and the means taken. The stars of the "field area" and the comparison stars of the "polar area" were measured indiscriminately as they came under the viewing microscope. Consequently the changes in personality due to fatigue or to variations in the light will affect equally the measures of the field stars and of the polar comparison stars in any particular part of a plate. The measures were made with a filar micrometer on a microscope of fairly high power—about 50 diameters. In the early part of the work a power of about 20 was employed but the images were so small and sharply defined that it was found a higher power could be used with advantage.

6. *Method of Reduction.*—The formula connecting magnitude and diameter has been taken as

$$m = \mathrm{C} - k\sqrt{d}$$

where d is the measured diameter of the image, and the constants C and k are determined from the measures of the standard stars. These were arranged in order of magnitude and divided into three groups :—

(i.) Stars brighter than $7^{m}\cdot5$ (excluding Polaris).
(ii.) Stars between $7^{m}\cdot5$ and $8^{m}\cdot5$.
(iii.) Stars fainter than $8^{m}\cdot5$.

The means of these groups gave three equations ; k was determined from the first and third and C from the mean of the three. This formula generally satisfies the measures very well over a range of at least three magnitudes.

The following table gives a list of the constants determined for some of the plates and the residuals of the groups show how far the equations are satisfied :—

Plate.	Constants. $m = C - k\sqrt{d}$.		Residuals. Mean Magnitude of Group.		
			$6^m \cdot 5$.	$8^m \cdot 2$.	$8^m \cdot 8$.
			m	m	m
4064 (4^m)	$m = 16 \cdot 39$	$- \cdot 275 \sqrt{d}$	$- \cdot 01$	$- \cdot 02$	$+ \cdot 02$
4064 (2^m)	15·86	$- \cdot 275$	$+ \cdot 03$	$- \cdot 03$	$\cdot 00$
4064 (4^m)	16·11	$- \cdot 268$	$\cdot 00$	$+ \cdot 01$	$- \cdot 01$
4064 (2^m)	15·91	$- \cdot 274$	$- \cdot 02$	$+ \cdot 02$	$- \cdot 01$
4071 (4^m)	14·58	$- \cdot 215$	$+ \cdot 02$	$- \cdot 04$	$+ \cdot 02$
4071 (2^m)	14·45	$- \cdot 227$	$+ \cdot 03$	$- \cdot 05$	$+ \cdot 03$
4071 (4^m)	14·82	$- \cdot 220$	$+ \cdot 03$	$- \cdot 04$	$+ \cdot 02$
4071 (2^m)	14·29	$- \cdot 224$	$+ \cdot 02$	$- \cdot 05$	$+ \cdot 03$
4376	14·30	$- \cdot 207$	$\cdot 00$	$- \cdot 01$	$\cdot 00$
4377	14·51	$- \cdot 214$	$+ \cdot 02$	$- \cdot 04$	$+ \cdot 02$
4378	14·65	$- \cdot 214$	$+ \cdot 03$	$- \cdot 03$	$+ \cdot 02$
4379	14·77	$- \cdot 215$	$+ \cdot 02$	$- \cdot 04$	$+ \cdot 02$
4406	14·53	$- \cdot 205$	$\cdot 00$	$- \cdot 02$	$+ \cdot 01$
4407	14·39	$- \cdot 205$	$\cdot 00$	$+ \cdot 02$	$- \cdot 01$
4413	13·98	$- \cdot 204$	$- \cdot 01$	$\cdot 00$	$- \cdot 01$
4431	14·59	$- \cdot 222$	$+ \cdot 03$	$- \cdot 05$	$+ \cdot 03$
4432	14·21	$- \cdot 211$	$\cdot 00$	$- \cdot 01$	$\cdot 00$
4434	14·74	$- \cdot 228$	$+ \cdot 04$	$- \cdot 08$	$+ \cdot 04$
4487	15·15	$- \cdot 233$	$\cdot 00$	$- \cdot 01$	$\cdot 00$
4514	14·95	$- \cdot 225$	$+ \cdot 01$	$- \cdot 01$	$+ \cdot 01$
4515	15·16	$- \cdot 229$	$- \cdot 02$	$+ \cdot 03$	$- \cdot 02$
Means.			$+ \cdot 010$	$- \cdot 021$	$+ \cdot 010$

It will be noticed that this is not a complete list of all the plates. When the work was begun a graphical method was used sometimes, but was afterwards discontinued. It was not however considered necessary to recompute the results already obtained by the graphical process.

7. *Errors depending on the Position of a Star on a Plate.*—When the secondary standards had been revised, as shown on p. 4, it was considered advisable to attempt to determine the error in the measured magnitude due to the position of the star on the plate. The fields measured are contained within the réseau lines 7 and 21 in each co-ordinate, the centre being at 14 (see diagrams p. 5). Each field was subdivided into 9 regions by the lines 11 and 17 in each co-ordinate, thus :—

x.	y.	x.	y.	x.	y.
7–11,	7–11	11–17,	7–11	17–21,	7–11
7–11,	11–17	11–17,	11–17	17–21,	11–17
7–11,	17–21	11–17,	17–21	17–21,	17–21

The means of the residuals of the magnitudes of the polar standards obtained from the measures of images in these areas were equated to expressions of the form,

$$ax+by+cx^2+dy^2+exy+f,$$

and for each plate gave nine equations for the determination of the constants a, b, c, etc.

As the focus of this triple lens was liable to change slightly from time to time —sufficient to alter the character of the images in the different parts of the field— a single set of constants could not be adopted for all the plates. They were therefore treated independently or in nightly groups if more than one plate had been taken on any one night.

In the following table the mean differences between the magnitudes derived directly from the formula $m=C-k\sqrt{d}$, and the adopted magnitudes of the polar stars, are given for the nine areas into which the plate was divided. The mean co-ordinates for the group are also given :—

CORRECTION FOR POSITION ON THE PLATE.

4431. R.A. 18h Dec.+89°.				4432. R.A. 7h 30m Dec.+89°.				4434. R.A. 19h 30m Dec.+89°.			
x.	y.	Mean Diff. of Mag.	No. of Stars.	x.	y.	Mean Diff. of Mag.	No. of Stars.	x.	y.	Mean Diff. of Mag.	No. of Stars.
int.	int.	m		int.	int.	m		int.	int.	m	
−6·0	−4·9	−·028	6	−4·9	−3·9	−·030	2	−4·3	−4·4	−·023	4
+0·1	−4·9	−·114	12	−0·3	−4·8	−·057	10	−0·4	−5·2	−·054	11
+4·2	−5·3	−·130	3	+4·8	−5·6	−·104	7	+4·9	−4·9	−·151	8
−5·2	+0·5	+·009	15	−5·1	+0·2	+·073	14	−4·9	+1·6	+·096	5
+0·6	+0·1	−·047	11	+0·3	−0·7	+·014	8	+0·2	−0·4	−·050	13
+5·5	+0·1	−·056	9	+4·8	−0·9	−·061	13	+5·1	+0·4	−·021	13
−5·3	+5·5	+·013	9	−5·7	+4·7	+·073	6	−5·1	+4·8	+·070	10
+0·9	+4·5	−·044	7	+0·3	+5·4	−·008	8	+0·1	+4·1	+·060	7
+4·9	+4·8	+·077	12	+5·7	+4·8	+·073	7	+5·1	+5·4	+·053	7

The means of the three plates, weighted according to the number of stars, were formed and are shown in the next table together with the co-efficients for the nine equations of condition.

MEAN OF PLATES 4431, 4432 AND 4434.

x.	y.	x^2.	y^2.	xy.	Mean Diff. of Mag.	C.	O—C.
int.	int.				m	m	m
−5·3	−4·6	28·1	21·2	+24·4	−·027	−·006	−·021
−0·2	−5·0	0·0	25·0	+ 1·0	−·077	−·094	+·017
+4·7	−5·1	22·1	26·0	−24·0	−·129	−·131	+·002
−5·1	+0·5	26·0	0·3	− 2·6	+·048	+·028	+·020
+0·4	−0·3	0·2	0·1	− 0·1	−·033	−·032	−·001
+5·1	+0·2	26·0	0·0	+ 1·0	−·045	−·028	−·017
−5·3	+5·0	28·1	25·0	−26·5	+·050	+·047	+·003
+0·4	+4·7	0·2	22·1	+ 1·9	+·002	+·021	−·019
+5·2	+5·0	27·0	25·0	+26·0	+·069	+·051	+·018

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The solution of the equations gave the constants :—

$$a = -·0055$$
$$b = +·0120$$
$$c = +·0009$$
$$d = -·0004$$
$$e = +·0012$$
$$f = -^{m}·026$$

Substituting these values we get the column C, and the column O–C shows how far the formula satisfies the equations of condition.

Corrections of this nature have been applied to all the measures.

8. *Revision of the Magnitudes of the Secondary Standards.*—As the plates in the zones whose centres are at declination +72° and +66° are measured and partly reduced, it has been possible to make a further revision of the Secondary Standards, using all the plates measured, in many cases 90 or more. It is satisfactory to note that the corrections are generally very small.

The mean magnitudes of the stars in Pickering's polar sequence determined

from all the plates have been compared with the adopted magnitudes given in Harvard Circular No. 170. The result is shown in Table I.:—

TABLE I.—COMPARISON WITH PICKERING'S SYSTEM (H. C. No. 170).

Harvard Circular No. 170.		Magnitude determined from the Plates.	H—G.	Means of Groups.		Harvard Circular No. 170.		Magnitude determined from the Plates.	H—G.	Means of Groups.	
No.	Mag.			Mag.	H—G.	No.	Mag.			Mag.	H—G.
	m	m	m	m	m		m	m	m	m	m
1*s*	2·71	...	...	...	...	8	8·10	8·12	−·02		
						3*r*	8·62	8·64	−·02	8·48	−·007
1	4·47	4·36	+·11	4·36	+·11	9	8·70	8·68	+·02		
2	5·24	5·16	+·08	5·16	+·08						
						10	8·89	8·87	+·02	8·90	+·030
						4*r*	8·97	8·93	+·04		
3	5·74	5·67	+·07	5·74	+·085						
4	5·91	5·81	+·10								
						11	9·42	9·33	+·09	9·41	+·165
2*s*	6·38	6·44	−·06			12	9·73	9·49	+·24		
5	6·39	6·40	−·01	6·46	+·043						
3*s*	6·54	6·49	+·05								
1*r*	6·69	6·50	+·19								
						5*r*	9·78	9·75	+·03		
						4*s*	9·99	9·66	+·33		
6	6·98	7·01	−·03			6*r*	10·17	9·85	+·32	9·86	+·270
7	7·18	7·19	−·01	7·30	·000	13	10·17	9·84	+·33		
2*r*	7·73	7·69	+·04			14	10·52	10·18	+·34		

From the means of the groups given in the last two columns, Table II. has been computed. It is assumed that in the various processes of measurement and reduction a systematic divergence from Pickering's standards has occurred to this extent, and these corrections have therefore been applied to all the magnitudes given in the catalogue.

TABLE II.—CORRECTION APPLIED TO MEASURED MAGNITUDES TO REDUCE THEM TO PICKERING'S SYSTEM (H.C. No. 170).

Measured Mag.	Correction.	Measured Mag.	Correction.	Measured Mag.	Correction.
m	m	m	m	m	m
4·0	+·12	6·0	+·07	8·0	−·01
4·5	+·11	6·5	+·04	9·0	+·04
5·0	+·10	7·0	+·02	9·5	+·14
5·5	+·09	7·5	−·01	10·0	+·31

The adopted magnitudes of the Secondary Standards are given in Table III. The magnitudes of the stars in this list differ but slightly from those already published in the *Monthly Notices of the Royal Astronomical Society*, Vol. LXXII. pp. 693–699. The magnitudes of the catalogue pp. 15–34 are systematically those of this list.

TABLE III.—SECONDARY POLAR STANDARDS BASED ON PICKERING'S POLAR SEQUENCE (HARVARD CIRCULAR No. 170).

B.D. No.	Harvard Circular No. 170.		Adopted Photog. Mag.	No. of Plates.	B.D. No.	Harvard Circular No. 170.		Adopted Photog. Mag.	No. of Plates.
	No.	Mag.				No.	Mag.		
		m	m				m	m	
88. 8	1*s*	2·71	2·71	...	85. 384	...	...	7·46	28
86. 269	1	4·47	4·47	69	85. 263	...	...	7·47	12
85. 383	2	5·24	5·24	29	85. 45	...	...	7·48	11
85. 19	...	...	5·49	15	85. 294	...	...	7·50	29
86. 344	3	5·74	5·75	80	86. 79	...	...	7·51	63
86. 272	4	5·91	5·89	78	85. 41	...	...	7·51	10
86. 51	...	...	6·05	48	85. 128	...	...	7·55	12
88. 4	5	6·39	6·45	92	84. 378	...	...	7·57	9
85. 78	...	...	6·45	15	86. 66	...	...	7·65	26
88. 71	2*s*	6·38	6·49	91	88. 112	2*r*	7·73	7·69	92
87. 107	3*s*	6·54	6·54	81	86. 217	...	...	7·71	57
87. 51	1*r*	6·69	6·55	70	86. 347	...	...	7·73	49
85. 74	...	...	6·58	19	86. 39	...	...	7·78	60
85. 409	...	...	6·59	37	86. 335	...	...	7·87	83
86. 176	...	...	6·64	40	86. 282	...	...	7·87	60
85. 399	...	...	6·64	27	86. 187	...	...	7·87	47
84. 451	...	...	6·71	6	86. 221	...	...	7·88	34
85. 269	...	...	6·78	21	85. 161	...	...	7·89	5
85. 63	...	...	6·86	5	87. 101	...	...	7·90	84
85. 403	...	...	6·94	26	84. 383	...	...	7·90	6
84. 517	...	...	6·99	7	85. 183	...	...	7·93	13
86. 17	...	...	7·02	64	84. 445	...	...	7·93	7
89. 13	6	6·98	7·03	89	86. 193	...	...	7·96	17
86. 182	...	...	7·18	38	84. 15	...	...	7·98	7
88. 64	7	7·18	7·19	91	87. 15	...	...	7·99	91
86. 319	...	...	7·21	78	84. 546	...	...	7·99	7
87. 205	...	...	7·25	91	86. 113	...	...	8·00	23
86. 161	..	...	7·26	35	86. 25	...	...	8·02	52
84. 412	...	...	7·30	6	84. 352	...	...	8·02	10
85. 401	...	...	7·32	32	87. 143	...	...	8·05	91
84. 463	...	...	7·33	10	85. 400	...	...	8·07	21
86. 201	...	...	7·35	39	85. 249	...	...	8·08	19
86. 170	...	...	7·38	39	86. 103	...	...	8·11	46
85. 222	...	...	7·45	7	88. 9	8	8·10	8·12	91
85. 80	...	...	7·46	6	85. 105	...	...	8·12	17

TABLE III.—*continued.*

B.D. No.	Harvard Circular No. 170.		Adopted Photog. Mag.	No. of Plates.	B.D. No.	Harvard Circular No. 170.		Adopted Photog. Mag.	No. of Plates.
	No.	Mag.				No.	Mag.		
		m	m				m	m	
85. 11	...	...	8·12	14	88. 86	...	...	8·58	92
86. 143	...	...	8·14	35	84. 523	...	...	8·59	14
86. 324	...	...	8·18	67	85. 191	...	...	8·61	16
84. 360	...	...	8·18	9	85. 337	...	...	8·61	23
88. 104	..	...	8·20	91	86. 172	...	...	8·61	35
87. 78	...	...	8·21	71	85. 367	...	...	8·62	34
86. 159	...	...	8·21	30	85. 278	...	...	8·62	25
87. 169	...	...	8·22	85	85. 75	...	...	8·62	7
87. 147	...	...	8·24	90	88. 76	3*r*	8·62	8·65	91
85. 359	...	...	8·24	24	87. 99	...	...	8·65	58
85. 81	...	...	8·24	6	86. 180	...	...	8·66	16
87. 180	...	...	8·25	84	86. 65	...	...	8·68	69
86. 154	...	...	8·25	21	86. 21	...	...	8·68	43
84. 536	...	...	8·28	11	85. 48	...	...	8·68	14
85. 9	...	...	8·30	27	88. 13	9	8·70	8·69	91
85. 50	...	...	8·31	15	88. 2	...	...	8·69	91
85. 132	...	...	8·34	5	88. 11	...	...	8·69	88
87. 181	...	...	8·35	91	86. 54	...	...	8·69	62
86. 264	...	...	8·35	72	85. 234	...	...	8·69	7
87. 122	...	...	8·39	89	84. 446	...	...	8·70	7
86. 152	...	...	8·39	42	88. 131	...	...	8·70	91
87. 201	...	...	8·40	89	85. 376	...	...	8·70	12
85. 65	...	...	8·43	7	87. 217	...	...	8·71	91
84. 179	...	...	8·43	10	84. 14	...	...	8·73	11
84. 505	...	...	8·43	7	87. 115	...	...	8·73	86
86. 9	...	...	8·44	46	87. 68	...	...	8·74	70
85. 406	...	...	8·44	18	88. 117	...	...	8·76	91
86. 275	...	...	8·46	59	86. 177	...	...	8·76	39
86. 318	...	...	8·48	89	85. 142	...	...	8·76	11
85. 196	...	...	8·48	16	85. 329	...	...	8·76	30
86. 102	...	...	8·49	46	87. 9	...	...	8·77	90
84. 461	...	...	8·49	10	87. 12	...	...	8·78	91
87. 83	...	...	8·50	69	85. 266	...	...	8·79	15
85. 150	...	...	8·51	5	88. 105	...	...	8·83	90
85. 412	...	...	8·53	36	85. 248	...	...	8·83	15
87. 33	...	...	8·53	90	87. 1	...	...	8·85	90
85. 2	...	...	8·54	37	87. 26	...	...	8·85	87
84. 389	...	...	8·54	6	87. 104	...	...	8·85	80
88. 77	...	...	8·56	91	88. 80	...	...	8·86	90
85. 160	...	...	8·56	11	88. 60	...	...	8·86	88

TABLE III.—*continued.*

B.D. No.	Harvard Circular No. 170.		Adopted Photog. Mag.	No. of Plates.	B.D. No.	Harvard Circular No. 170.		Adopted Photog. Mag.	No. of Plates.
	No.	Mag.				No.	Mag.		
		m	m				m	m	
85.° 320	...	...	8·86	22	85.° 330	...	...	9·13	26
85. 101	...	...	8·86	5	86. 120	...	...	9·14	5
85. 53	...	...	8·88	32	88. 100	...	...	9·15	24
89. 3	10	8·89	8·90	95	86. 91	...	...	9·15	13
88. 115	...	...	8·90	91	88. 75	...	...	9·16	25
85. 57	...	...	8·90	4	86. 184	...	...	9·16	14
86. 96	...	...	8·92	45	87. 23	...	...	9·16	27
87. 187	...	...	8·93	91	85. 361	...	...	9·16	8
87. 16	...	...	8·94	90	85. 371	...	...	9·16	7
86. 7	...	...	8·95	83	85. 46	...	...	9·19	7
87. 46	...	...	8·95	75	86. 49	...	...	9·19	10
86. 38	...	...	8·95	47	87. 82	...	...	9·20	23
85. 32	...	...	8·95	13	88. 130	...	...	9·22	22
86. 146	...	...	8·95	11	87. 71	...	...	9·22	20
88. 114	47	8·97	8·96	91	86. 297	...	...	9·23	19
87. 85	...	...	8·96	81	86. 222	...	...	9·23	19
85. 233	...	...	8·96	9	86. 45	...	...	9·23	8
86. 256	...	...	8·97	37	85. 155	...	...	9·23	6
85. 69	...	...	8·97	6	88. 101	...	...	9·25	25
85. 347	...	...	8·99	19	85. 355	...	...	9·25	7
86. 86	...	...	8·99	17	86. 163	...	...	9·25	14
86. 126	...	...	8·99	11	87. 185	...	...	9·27	24
88. 110	...	...	9·00	91	86. 169	...	...	9·28	10
86. 171	...	...	9·00	16	88. 35	...	...	9·29	12
85. 62	...	...	9·01	5	86. 191	...	...	9·29	14
88. 39	...	...	9·02	35	88. 111	...	...	9·29	21
85. 390	...	...	9·02	29	87. 5	...	...	9·30	12
86. 211	...	...	9·02	16	86. 263	...	...	9·30	25
85. 340	...	...	9·02	13	86. 286	...	...	9·32	8
85. 239	...	...	9·02	7	86. 107	...	...	9·32	6
86. 67	...	...	9·03	57	89. 21	...	...	9·33	86
85. 354	...	...	9·03	12	87. 117	...	...	9·33	9
86. 277	...	...	9·04	32	87. 193	...	...	9·33	13
86. 43	...	...	9·04	21	88. 5	...	...	9·35	16
86. 199	...	...	9·05	27	86. 165	..	...	9·36	6
87. 45	...	...	9·08	27	88. 139	...	...	9·37	14
86. 14	...	...	9·10	64	85. 392	...	...	9·37	6
86. 64	...	...	9·10	9	86. 75	...	...	9·38	8
86. 242	...	...	9·10	14	87. 35	...	...	9·38	10
87. 79	...	...	9·11	29	85. 83	...	...	9·38	6
87. 151	...	...	9·11	31	87. 206	...	...	9·41	16
86. 332	...	...	9·11	35	87. 80	...	...	9·42	9
86. 290	...	...	9·12	19	89. 18	11	9·42	9·42	86
86. 44	...	...	9·12	18	87. 121	...	...	9·42	10
85. 304	...	...	9·12	8	87. 124	...	...	9·42	13

9. *The Probable Error.*—The probable error of a single determination of magnitude on an average plate has been found to be $\pm^{m}\cdot056$, obtained by comparing the residuals of the polar standards amongst themselves. As this does not include the error introduced by want of constancy in the sky while the photographs were being taken or to the possible inequality of the sky at the pole and at the field, comparison was made of the two observations of one star in every twenty in the catalogue. The mean discordance between the two observations was $\pm^{m}\cdot106$ giving a probable error of $\pm^{m}\cdot064$ for a single observation. This is slightly larger than the result given above, on account of the slight differences between the sky at the pole and at the field. This figure includes all the accidental errors of observation and measurement to which this method of comparison is liable. As most of the stars have at least two observations, the probable errors of the magnitudes given in the catalogue seldom exceed $\pm^{m}\cdot045$.

The photographs were taken and measured, and the magnitudes determined under the direction of Mr Davidson.

F. W. DYSON.

ROYAL OBSERVATORY, GREENWICH,
18*th September* 1913.

ROYAL OBSERVATORY, GREENWICH.

PHOTOGRAPHIC MAGNITUDES OF STARS BRIGHTER THAN THE 9TH MAGNITUDE

Dec. +75° to +90°.

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1		h m s	° ′		
78° 855	9·1	0 0 16	+78° 24′	8·39	1
87 220	8·8	0 20	87 20	9·56	5
80 793	8·8	0 26	80 31	8·79	2
84 546	8·2	1 28	84 51	7·99	7
85 412	9·0	2 14	86 14	8·53	36
78 1	6·5	3 49	79 10	6·09	2
79 1	9·3	4 0	79 51	9·23	2
85 1	9·5	4 1	85 28	9·32	2
83 1	8·5	4 17	83 36	8·17	3
75 1	8·7	4 32	75 26	9·45	1
11					
83 3	9·0	0 7 0	+83 29	9·00	1
87 1	9·0	7 27	87 51	8·85	90
78 2	9·5	7 37	78 20	9·29	1
75 4	7·1	8 29	75 28	8·69	2
85 2	8·9	8 45	86 10	8·54	37
75 5	7·9	8 49	75 28	8·45	2
85 3	8·8	9 23	86 7	9·68	1
77 4	8·2	9 30	77 28	9·03	1
82 4	8·8	9 58	82 49	8·68	1
84 3	8·0	10 28	84 24	7·56	3
21					
76 5	6·5	0 10 33	+76 24	6·31	2
80 3	8·8	10 52	81 7	9·07	2
76 6	9·0	11 21	77 2	9·16	1
84 4	9·2	11 50	84 38	8·86	3
75 6	8·8	11 51	75 35	8·41	2
75 7	7·4	12 43	75 43	6·92	2
80 4	9·0	13 10	80 53	9·05	1
75 8	9·5	13 28	75 16	9·22	1
75 10	7·8	14 26	76 1	9·23	2
77 6	8·9	15 43	77 55	8·66	2
31					
88 2	8·8	0 16 4	+88 53	8·69	91
80 8	9·0	17 15	80 38	9·21	1
77 9	8·5	18 17	77 17	8·58	2
79 10	7·0	20 42	79 30	6·24	2
75 18	8·8	22 41	75 39	8·83	2
80 10	7·9	24 3	80 49	7·92	2
76 10	6·5	24 29	76 28	6·95	2
85 9	8·3	26 12	85 46	8·30	27
84 9	9·0	26 41	84 26	8·58	3
86 7	8·8	27 6	87 15	8·95	83
41					
82 14	8·3	0 27 49	+83 5	7·76	1
76 12	8·4	28 36	76 57	8·15	2
84 10	8·5	28 49	84 32	8·51	3
85 11	8·8	29 14	85 25	8·12	14
75 26	9·4	29 31	75 16	9·35	4
83 9	7·8	29 47	84 7	7·33	3
74 21	9·5	29 53	75 13	9·53	3
83 10	9·0	30 53	84 12	8·11	3
83 11	9·2	31 16	84 12	8·42	3
85 13	9·4	32 6	85 43	9·47	2

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
51		h m s	° ′		
81° 13	6·5	0 32 13	+81° 57′	6·83	3
76 14	7·0	33 23	76 19	7·53	2
76 16	9·0	33 42	76 18	8·91	2
83 12	9·2	33 48	83 49	9·31	2
80 16	8·9	35 4	81 14	8·82	2
78 21	8·0	35 53	78 39	8·83	2
76 20	8·9	36 19	76 27	8·82	2
86 9	8·6	37 8	86 24	8·44	46
76 22	8·2	37 33	76 40	8·90	2
84 13	9·0	37 46	84 30	8·48	5
61					
76 23	9·1	0 37 59	+76 27	8·94	2
75 36	7·9	38 12	75 24	7·63	3
87 5	9·2	38 55	87 17	9·30	12
80 19	8·4	39 20	80 36	9·14	1
82 17	9·1	39 21	82 35	9·15	1
81 16	9·2	40 10	81 53	9·45	2
75 42	8·4	41 10	76 0	8·27	2
81 17	9·3	41 11	81 25	9·40	2
83 15	8·8	41 21	84 5	8·73	3
77 25	7·0	41 33	77 55	7·75	2
71					
80 20	9·1	0 41 35	+80 48	9·14	1
81 18	7·6	41 55	81 25	8·07	2
76 25	9·0	42 0	76 26	8·83	2
80 21	8·9	42 31	81 4	8·98	2
87 7	9·5	42 47	87 21	9·84	3
77 27	6·7	43 41	77 25	6·73	2
74 33	8·9	43 45	75 3	8·66	4
86 11	9·5	43 51	86 22	9·77	1
84 14	8·6	44 9	85 10	8·73	11
77 28	8·5	44 9	77 51	8·96	2
81					
77 29	8·2	0 44 22	+78 5	8·83	2
79 19	7·7	44 49	79 18	7·44	2
84 15	8·2	45 14	84 55	7·98	7
81 20	9·0	45 14	82 15	8·75	2
82 20	6·5	45 30	83 10	5·86	2
84 16	9·1	45 37	84 46	9·19	2
82 21	9·1	47 50	83 10	9·02	2
81 23	8·9	48 31	82 9	8·95	2
76 27	9·0	48 45	76 30	9·01	2
86 14	8·8	49 12	86 47	9·10	64
91					
82 22	9·1	0 49 46	+83 9	9·20	2
82 23	8·4	49 52	82 34	7·99	2
76 28	8·0	49 54	76 56	7·96	2
82 24	9·2	50 11	82 15	9·37	2
75 45	8·7	50 40	75 28	8·64	3
76 30	8·8	51 39	76 56	8·50	2
83 19	9·0	51 49	84 7	8·84	3
79 24	6·5	52 9	80 0	6·76	2
83 20	7·0	52 49	84 4	6·69	4
80 26	8·5	53 17	80 28	8·54	2

Dec. +75° to +90°.

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
101					
81° 25	var.	h m s 0 53 23	+81° 20′	6·58	4
76 31	8·2	53 41	76 19	8·25	2
78 28	8·1	54 27	78 52	8·27	2
81 27	8·6	54 42	81 34	8·69	2
85 19	5·0	55 2	85 43	5·49	15
77 34	8·3	55 5	77 47	8·79	2
81 29	8·6	55 26	81 43	8·69	2
88 4	7·5	55 38	88 29	6·45	92
85 20	8·9	55 39	85 16	9·35	4
81 30	8·3	56 20	81 25	7·73	3
111					
79 26	8·8	0 57 59	+79 33	8·67	2
86 17	7·5	59 6	86 37	7·02	64
88 5	9·2	59 30	88 27	9·35	16
87 9	8·8	0 59 36	87 44	8·77	90
76 33	8·1	1 0 33	77 9	8·36	2
79 29	6·4	0 40	79 29	6·90	2
82 30	9·0	1 16	82 55	8·53	2
K. 183	9·3	1 29	79 4	9·01	2
78 33	8·8	1 45	79 4	9·45	2
84 18	8·8	3 16	84 34	8·82	5
121					
81 34	8·7	1 3 26	+81 15	9·49	2
78 34	5·6	3 38	79 8	5·63	2
80 31	8·7	3 39	80 27	9·08	2
77 41	8·3	5 12	77 18	8·18	2
80 32	9·3	6 1	80 57	9·31	2
85 24	9·4	6 55	85 54	9·56	1
79 36	6·5	7 39	79 23	6·57	2
76 38	8·9	8 24	76 16	8·95	2
80 34	8·0	8 30	81 2	8·29	2
83 27	9·2	9 1	83 42	9·29	3
131					
77 45	8·4	1 9 5	+77 16	8·27	2
80 35	7·3	9 41	80 20	7·25	3
77 46	8·5	9 52	78 7	8·64	2
80 36	6·7	10 4	80 22	6·60	3
80 37	9·1	10 34	81 12	9·34	2
86 21	8·8	10 50	86 25	8·68	43
76 39	7·0	11 6	76 16	8·21	2
76 40	6·4	11 59	77 3	6·90	2
79 39	8·0	13 9	79 36	7·78	2
78 36	7·5	13 10	78 30	8·11	2
141					
75 58	7·1	1 13 48	+76 11	7·77	2
75 59	6·2	13 52	75 43	6·46	2
83 30	9·3	13 54	84 13	8·98	2
80 38	8·4	14 44	80 50	9·12	3
77 49	6·0	14 58	78 12	6·27	2
79 40	9·0	15 11	79 47	8·65	2
78 40	8·3	16 15	78 34	8·40	2
88 6	9·5	17 26	88 34	9·74	2
84 23	8·8	17 44	84 52	9·31	3
76 42	8·0	17 51	77 9	7·75	2
151					
87 12	8·0	1 18 4	+88 3	8·78	91
84 24	9·2	18 14	84 59	9·53	2
80 43	8·6	18 54	80 31	9·35	2
87 13	9·1	21 25	87 23	9·48	5
88 8	2·0	22 33	88 46	*2·71*	
78 45	8·5	22 50	78 38	8·50	2
82 39	8·8	23 3	82 50	9·08	2
82 40	8·6	23 5	82 17	8·98	2
76 49	8·6	26 29	77 5	8·84	1
78 49	8·5	26 54	78 39	8·47	1
161					
80° 50	7·4	h m s 1 29 38	+80° 55′	6·89	2
81 47	8·8	29 58	81 34	9·44	2
75 69	8·1	30 6	76 13	8·07	3
80 51	9·1	30 51	81 11	9·42	1
77 58	6·5	31 35	77 28	6·48	1
74 73	8·5	31 44	75 3	8·79	2
85 32	9·0	32 6	85 46	8·95	13
76 53	8·5	32 6	76 20	8·79	1
78 52	8·0	32 31	78 50	8·94	1
80 52	9·1	32 32	80 41	9·54	1
171					
84 29	8·0	1 33 52	+84 43	7·90	4
81 51	8·7	33 59	81 59	8·52	2
84 30	9·0	34 52	84 33	8·66	4
79 50	9·0	34 58	80 1	8·61	1
79 51	8·0	35 38	79 45	8·79	1
75 72	7·0	35 57	75 22	7·21	2
83 36	8·9	37 6	83 53	9·24	2
81 57	8·6	38 26	81 19	8·86	2
80 55	7·5	38 50	80 23	6·75	2
83 38	8·7	39 11	83 50	8·92	4
181					
81 58	9·2	1 39 35	+82 5	9·59	1
80 57	7·5	39 46	80 53	7·28	2
82 43	8·8	40 6	82 31	9·26	2
86 25	8·8	40 19	86 26	8·02	52
76 58	8·0	40 35	76 30	8·50	1
84 32	8·9	41 0	84 39	9·19	3
83 39	9·3	41 2	83 34	9·60	2
79 55	8·6	41 23	79 42	8·69	1
74 84	6·8	42 49	75 6	7·08	3
81 61	6·8	43 31	81 28	8·37	2
191					
85 36	9·1	1 43 42	+85 15	9·28	3
83 40	9·0	43 42	83 24	8·80	3
81 62	9·3	43 56	82 9	9·29	1
83 41	9·0	44 17	83 14	8·91	4
80 58	6·8	44 35	80 25	8·24	2
77 65	6·5	44 44	77 42	7·38	2
84 34	8·1	45 42	84 15	8·59	4
81 63	9·3	46 7	81 58	9·00	1
75 76	6·8	46 11	75 44	7·03	2
75 77	8·0	46 40	75 33	8·30	2
201					
77 67	8·5	1 47 16	+77 26	8·45	2
78 62	8·3	48 24	79 13	8·60	2
75 80	7·6	48 39	75 53	8·19	2
78 63	8·5	49 3	78 51	9·43	2
85 38	9·0	49 11	85 59	9·36	5
87 15	8·2	49 43	88 0	7·99	91
81 67	8·4	50 24	82 4	9·46	1
79 57	8·8	50 39	79 48	9·12	1
75 83	7·2	51 17	75 28	8·82	2
78 65	9·3	51 40	79 13	9·52	2
211					
81 68	9·0	1 51 53	+81 59	8·81	1
80 61	8·6	51 57	80 31	8·74	2
83 45	9·2	52 6	83 53	9·42	2
78 66	8·1	52 7	78 26	7·83	2
77 72	8·8	52 43	77 45	8·91	2
77 73	6·3	52 49	77 26	6·87	2
74 91	6·5	52 52	75 1	6·43	4
80 63	8·9	54 11	81 9	9·38	1
76 63	5·3	55 6	76 48	5·67	2
79 61	7·5	55 43	80 11	7·26	2

101. U Cephei, 1911 Aug. $8^d{\cdot}476$, $6^m{\cdot}72$; Aug. $9^d{\cdot}434$, $6^m{\cdot}49$; 1912 Jan. $27^d{\cdot}392$, $6^m{\cdot}58$, $6^m{\cdot}52$.

Dec. +75° to +90°.

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
221		h m s	° ′		
75 86	5·0	1 55 58	+75 38	6·16	2
87 16	8·8	56 7	88 12	8·94	90
86 29	9·4	56 33	86 25	9·80	1
80 64	6·1	57 5	80 49	6·21	2
78 69	7·3	57 53	78 52	7·01	2
80 65	6·7	57 54	81 0	6·87	2
85 41	7·7	1 58 48	85 16	7·51	10
78 71	7·3	2 1 6	79 13	7·19	2
82 51	7·0	1 25	83 5	7·08	2
79 63	6·7	1 25	79 13	6·58	2
231					
77 76	8·7	2 3 7	+77 26	8·23	2
86 31	9·3	3 37	86 58	9·45	7
86 32	9·3	4 31	86 54	9·60	5
78 73	7·3	4 41	78 43	6·88	2
76 75	9·0	5 38	76 28	8·56	2
83 52	9·1	6 4	84 6	9·02	4
82 52	9·2	6 49	82 41	9·56	1
84 37	9·2	6 56	84 21	9·59	2
77 78	7·9	7 39	77 17	8·79	2
80 70	7·7	8 36	80 16	7·46	2
241					
84 38	9·1	2 8 45	+84 43	9·33	3
83 54	8·9	9 44	83 13	7·99	1
84 40	9·0	9 52	84 36	9·52	4
78 78	9·0	10 4	79 12	9·05	2
77 79	7·9	10 47	77 48	8·98	2
78 80	8·7	11 38	78 50	9·06	2
79 68	7·7	12 17	79 19	7·90	2
78 81	8·5	13 28	78 15	8·83	2
78 82	8·0	14 1	79 7	9·01	2
78 83	7·9	14 3	79 11	8·84	2
251					
88 9	8·0	2 14 13	+88 42	8·12	91
75 94	7·5	14 39	75 41	7·37	2
81 78	9·0	15 21	81 29	9·41	1
79 69	8·3	15 24	80 10	8·27	2
88 11	8·8	17 23	88 15	8·69	88
81 80	9·0	19 17	81 54	9·44	1
84 42	8·5	19 36	84 37	8·81	5
82 55	8·7	20 8	82 34	8·86	1
83 56	8·0	20 20	83 23	7·94	1
81 81	9·0	20 48	81 40	9·69	1
261					
84 43	9·2	2 22 21	+84 51	9·62	3
77 84	7·5	22 31	77 13	8·09	2
80 80	8·4	23 3	81 12	9·81	1
83 58	9·0	23 7	83 51	9·39	1
85 45	8·6	23 22	85 22	7·48	11
79 75	7·5	23 41	79 17	8·09	2
76 81	7·0	23 44	76 17	8·29	2
86 38	9·0	25 15	86 33	8·95	47
79 76	8·4	26 44	79 40	8·87	2
74 111	7·5	27 47	75 5	7·89	3
271					
82 59	9·0	2 28 1	+83 11	8·79	1
75 102	8·7	28 3	76 6	8·92	2
78 94	8·5	28 37	79 6	8·81	2
77 92	8·9	29 36	77 45	9·11	2
82 60	9·2	29 54	82 24	9·43	1
77 93	8·5	30 19	77 12	9·05	2
75 103	8·0	30 31	75 35	8·30	2
81 88	9·1	30 57	81 15	9·25	1
80 85	9·0	31 19	80 27	9·25	3
88 10	9·0	31 34	89 6	9·89	1
281					
78 95	8·0	2 32 8	+78 46	8·65	2
86 39	8·6	32 13	86 37	7·78	60
85 46	8·9	32 22	85 50	9·19	7
81 90	8·5	32 50	81 26	9·76	1
80 86	5·9	33 21	81 1	7·02	3
80 87	9·0	34 55	81 0	9·46	1
81 93	9·2	38 58	81 28	9·69	1
85 48	8·8	39 27	85 27	8·68	14
81 95	8·6	39 38	81 59	8·40	1
78 98	8·0	40 49	78 15	8·58	2
291					
85 50	8·8	2 40 58	+85 28	8·31	15
81 96	8·5	41 15	81 26	9·19	1
75 108	9·2	41 21	75 32	9·43	2
79 86	7·0	41 48	79 42	7·21	2
88 13	8·5	42 15	88 34	8·69	91
82 70	9·2	43 22	82 45	9·04	1
80 89	8·0	43 55	80 39	8·68	2
75 109	7·5	44 15	76 7	8·53	2
75 110	8·5	44 35	75 49	8·72	2
80 90	8·3	45 11	80 16	8·99	2
301					
84 48	9·2	2 45 17	+84 14	8·61	3
75 113	8·6	45 19	75 15	7·87	2
75 112	9·0	45 28	75 26	9·32	2
79 88	8·4	45 38	79 51	9·16	1
80 92	9·0	46 18	80 53	9·30	2
76 101	6·8	47 18	76 41	7·63	1
79 89	8·9	49 2	79 22	9·26	1
86 44	9·0	49 54	87 1	9·12	18
86 43	8·9	50 15	87 8	9·04	21
83 67	9·2	51 3	83 27	9·04	1
311					
80 96	8·8	2 51 4	+80 38	9·36	2
75 119	8·5	51 29	75 24	8·93	2
77 104	8·1	51 52	77 41	8·24	1
87 23	8·7	51 58	88 9	9·16	27
78 103	5·6	52 47	79 1	7·01	2
78 104	8·9	52 50	78 39	9·16	1
79 90	8·8	53 3	80 2	8·27	2
86 45	9·3	53 56	86 49	9·23	8
82 76	8·0	54 17	82 31	7·71	1
74 133	9·0	54 52	75 6	8·93	2
321					
75 122	8·8	2 55 7	+75 36	8·39	2
77 105	8·5	55 11	78 10	8·62	1
79 91	8·3	55 43	79 54	7·99	2
84 51	8·7	55 55	84 28	9·13	2
80 97	5·5	56 11	81 5	6·06	2
75 124	7·4	56 16	75 25	9·05	2
83 72	9·3	56 27	84 4	9·64	1
83 73	9·2	56 36	83 11	9·29	1
76 109	8·9	57 18	76 12	8·61	1
84 53	8·5	57 40	84 36	8·92	2
331					
76 110	9·0	2 57 53	+77 8	9·16	1
77 108	8·0	58 16	77 59	8·73	1
87 26	8·7	58 32	87 33	8·85	87
75 127	8·3	58 34	75 43	7·67	2
89 6	9·4	2 59 59	89 12	10·13	1
82 78	9·0	3 0 30	82 47	9·15	1
81 100	9·1	0 31	81 31	9·43	1
77 109	7·0	0 46	77 49	8·25	1
89 4	9·4	0 57	89 36	10·27	1
79 94	7·3	1 27	79 45	7·53	2

Dec. +75° to +90°.

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
341		h m s	° ′		
80 100	8·8	3 1 53	+80 58	9·94	1
79 95	8·9	1 58	79 43	8·90	2
77 111	7·5	3 45	78 8	8·86	1
		3 45	78 8	10·13	1
78 109	7·0	4 1	78 30	6·99	2
76 116	8·8	4 25	76 12	9·75	1
85 53	8·8	4 33	86 3	8·88	32
85 54	9·2	4 35	85 22	9·25	4
87 27	9·0	4 38	88 0	9·81	3
79 96	8·1	4 46	79 58	9·01	2
351					
80 103	8·6	3 5 46	+80 21	8·70	2
81 107	7·4	6 31	81 47	8·55	1
76 119	8·3	7 10	76 39	8·75	1
77 115	6·2	7 37	77 22	5·75	1
82 82	7·5	8 6	83 10	8·87	2
84 59	6·0	8 35	84 33	6·47	3
84 61	9·0	8 50	84 15	9·34	2
76 120	8·2	8 51	76 42	8·04	1
83 79	8·2	8 51	83 41	8·41	3
75 130	9·0	9 9	76 2	8·93	2
361					
88 16	9·2	3 9 18	+88 27	9·71	2
75 131	8·4	9 38	75 39	8·23	2
80 106	8·9	11 22	80 31	9·38	2
77 119	7·5	14 38	78 7	8·06	2
76 121	8·0	16 35	76 48	8·65	1
76 123	9·0	17 33	76 57	8·72	1
81 112	8·4	18 15	81 27	8·68	2
77 123	7·1	18 30	77 40	8·23	2
80 109	9·0	18 37	80 22	9·59	2
89 3	8·8	18 54	89 41	8·90	95
371					
74 152	9·0	3 19 13	+75 0	9·31	2
81 114	9·1	20 3	81 12	9·14	2
76 125	8·6	20 4	76 16	8·29	1
82 88	8·8	20 27	83 4	9·04	2
76 126	8·7	20 37	76 30	8·72	1
75 140	9·5	21 33	75 10	9·69	2
79 104	9·0	22 36	79 57	9·37	2
82 90	8·2	23 23	83 2	8·13	2
78 123	8·9	23 25	78 58	8·76	2
77 126	8·5	24 26	78 6	7·90	2
381					
75 141	8·4	3 24 41	+75 24	8·99	3
86 49	9·5	26 23	87 0	9·19	10
75 143	6·5	27 21	75 24	7·00	3
82 94	9·3	28 45	82 10	9·53	2
76 128	7·5	29 40	76 51	7·74	2
84 65	8·9	29 52	84 56	9·06	2
77 131	8·4	31 23	77 44	9·18	2
75 144	8·6	32 27	75 24	8·81	3
83 90	9·2	33 14	83 15	9·80	1
74 167	8·8	33 24	75 2	9·18	2
391					
83 91	7·3	3 33 42	+83 14	7·53	2
79 110	7·8	33 48	80 0	8·45	3
86 51	6·0	33 56	86 20	6·05	48
79 111	8·9	34 13	79 15	8·81	2
77 133	7·2	34 56	77 48	6·91	2
78 131	9·3	34 58	78 50	9·05	2
81 125	7·9	36 17	81 14	8·56	2
86 52	9·3	36 31	86 25	9·46	2
77 134	8·0	36 47	78 1	7·73	2
75 147	8·2	36 53	75 27	8·51	2

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
401		h m s	° ′		
83 92	9·3	3 36 54	+83 12	9·15	2
75 149	9·2	37 21	75 31	9·37	3
85 57	8·5	38 25	85 20	8·90	4
84 69	8·8	38 29	84 22	8·42	4
82 101	8·4	38 50	82 26	8·29	2
78 133	8·9	39 17	78 36	9·03	2
76 137	8·2	39 36	76 18	8·95	2
79 117	8·9	42 49	79 24	8·79	2
83 94	9·0	43 5	83 16	9·06	2
76 141	9·0	43 36	76 25	8·79	2
411					
81 132	9·2	3 43 53	+81 44	9·38	2
76 142	8·2	44 1	77 7	8·50	2
83 96	8·7	44 6	83 49	9·44	2
79 120	8·6	44 14	79 55	8·61	2
79 121	8·7	44 25	79 13	8·46	2
81 134	7·8	45 29	81 35	8·09	2
76 143	8·9	45 34	76 30	9·56	2
81 135	7·8	45 47	81 17	7·65	3
80 121	7·8	46 19	80 56	8·41	2
82 105	9·0	46 28	82 35	9·01	2
421					
76 144	9·0	3 46 55	+76 29	9·16	2
78 136	8·8	47 45	78 43	8·99	2
75 154	8·2	48 24	75 53	8·85	2
77 138	7·0	49 3	77 55	7·75	2
79 124	8·9	50 5	79 13	8·27	2
79 125	8·3	50 23	79 30	7·61	2
80 123	8·3	50 42	80 42	7·53	2
75 156	8·0	51 38	75 52	8·51	2
79 126	8·3	52 27	79 20	8·50	2
86 54	8·9	52 36	86 40	8·69	62
431					
79 127	9·5	3 53 9	+79 29	8·92	2
75 160	7·5	53 9	76 8	7·75	2
80 125	4·9	53 17	80 25	5·60	3
79 128	9·0	53 41	79 42	8·79	2
87 31	9·2	53 44	87 16	9·71	2
78 142	8·0	54 16	78 41	7·46	2
86 55	9·0	54 19	86 13	9·55	1
77 141	8·9	54 22	77 49	9·09	2
78 143	8·5	54 55	78 9	8·51	2
79 130	8·7	55 4	79 8	8·87	2
441					
78 145	8·4	3 56 43	+78 16	9·37	1
78 146	7·2	57 9	78 46	7·75	2
79 131	8·8	57 24	79 34	9·21	2
83 100	8·8	57 52	83 39	8·68	4
76 151	8·7	58 21	76 27	9·44	1
79 132	9·1	58 39	80 1	9·23	2
76 153	8·8	59 37	76 49	8·80	1
77 145	8·4	3 59 45	78 7	9·18	2
80 127	6·8	4 1 5	80 17	7·10	3
83 102	8·7	1 23	83 50	9·06	3
451					
81 147	7·5	4 1 57	+81 43	7·25	2
75 165	8·7	2 3	76 1	8·63	2
75 166	8·5	2 5	76 2	9·15	2
75 167	8·5	2 24	75 34	8·64	2
81 149	8·3	3 1	81 11	7·87	3
81 150	7·9	3 39	81 23	7·36	3
80 129	8·3	4 14	80 10	8·78	3
78 150	9·0	4 32	78 22	9·28	1
79 136	8·8	4 40	79 7	9·05	2
85 62	9·0	4 42	85 38	9·01	5

343–4. Images touching; measures unsatisfactory.
392. SS Cephei, 1911 Aug. $14^{d}\cdot485$, $8^{m}\cdot45$; Nov. $9^{d}\cdot331$, $8^{m}\,48$; 1912 Mar. $7^{d}\cdot464$, $8^{m}\cdot41$.
402. ? Variable, 1911 Aug. $14^{d}\cdot485$, $9^{m}\cdot60$; 1912 Mar. $7^{d}\cdot464$, $9^{m}\cdot12$; Dec. $9^{d}\cdot618$, $9^{m}\cdot39$.
422. As one mass. Components $9^{m}\cdot3$, $10^{m}\cdot5$.

Dec. +75° to +90°.

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
461		h m s	° ′		
87 33	8·5	4 4 51	+88 2	8·53	90
83 104	5·0	4 59	83 34	5·43	4
85 63	6·5	5 6	85 17	6·86	5
77 150	7·0	5 36	77 50	7·78	2
83 107	9·2	6 35	83 34	9·23	2
79 137	8·8	6 44	79 8	8·58	2
78 151	8·2	6 50	78 45	7·92	2
82 113	5·0	7 59	83 6	6·07	3
75 173	6·8	8 12	75 52	6·51	2
89 7	9·3	8 37	89 13	9·86	3
471					
84 78	7·5	4 8 57	+84 14	8·40	4
80 133	5·7	9 38	80 35	6·43	2
83 111	8·7	11 38	83 57	8·55	4
75 175	8·5	11 44	75 14	8·59	2
80 134	7·4	12 0	80 42	7·00	2
79 142	8·9	12 16	79 25	9·02	2
79 143	8·0	12 37	79 28	8·00	2
80 137	9·1	14 15	80 25	9·24	3
81 152	9·3	14 41	82 7	9·18	1
80 138	8·7	16 23	80 34	9·35	2
481					
74 201	9·1	4 16 25	+75 6	9·13	2
74 202	9·4	16 40	75 2	9·65	1
77 161	8·9	17 7	77 34	8·98	1
85 64	9·0	17 29	85 14	9·01	3
77 162	7·8	17 50	77 24	8·14	1
80 140	7·4	19 9	80 40	7·32	2
84 83	9·1	19 31	84 48	8·86	4
79 145	8·5	19 34	80 2	9·14	1
75 182	8·0	19 45	75 48	8·72	2
85 65	8·5	21 22	85 29	8·43	7
491					
83 114	7·4	4 21 32	+83 50	7·94	4
78 157	7·5	22 8	78 46	7·29	1
80 143	8·8	23 17	80 57	9·23	2
84 85	9·0	24 17	84 26	8·87	2
76 165	8·0	25 5	76 46	8·94	1
76 166	8·8	25 35	76 33	8·71	1
76 167	8·6	25 45	76 45	8·41	1
76 169	8·0	26 45	76 22	7·73	1
80 146	8·0	27 14	80 39	8·52	2
79 149	8·5	27 22	79 34	8·57	1
501					
88 20	9·2	4 27 49	+89 1	10·10	1
83 118	8·9	28 3	83 33	8·73	3
80 147	7·9	28 31	80 21	8·69	2
79 150	7·0	28 49	79 28	6·51	2
80 148	9·1	30 11	80 58	9·29	2
78 161	8·1	30 27	78 57	8·36	1
78 162	8·4	30 54	78 9	8·66	1
86 62	9·5	31 22	86 9	9·97	1
76 173	8·9	31 24	76 50	8·46	1
80 149	8·1	31 34	80 28	8·66	2
511					
79 152	9·3	4 32 0	+79 53	9 19	1
76 174	6·3	32 8	76 25	6·73	1
84 88	7·7	33 23	84 42	7·52	4
84 87	9·0	33 50	85 6	9·13	2
83 121	8·5	34 7	83 7	8·10	3
81 162	9·2	34 25	81 19	8·92	2
85 68	9·5	34 26	86 0	10·00	1
86 64	9·2	34 45	86 18	9·10	9
75 189	6·0	35 22	75 46	6·18	2
85 69	9·4	35 30	86 0	8·97	6

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
521		h m s	° ′		
87 35	9·0	4 35 38	+87 42	9·38	10
75 190	8·9	36 53	75 45	8·93	2
82 125	8·5	36 58	83 1	7·35	3
76 176	8·8	36 59	77 3	8·99	1
79 155	8·4	37 50	79 30	8·53	2
86 65	8·3	38 2	86 43	8·68	69
74 217	9·0	38 8	75 3	9·68	1
77 172	7·8	39 14	77 23	7·93	1
81 168	8·5	39 29	81 28	7·82	2
75 193	7·0	39 32	75 32	7·54	3
531					
80 154	9·2	4 41 26	+80 39	9·39	3
80 155	5·5	41 37	81 2	6·30	2
77 173	8·3	41 55	77 27	8·56	1
83 126	8·5	42 26	83 19	8·77	3
84 90	9·1	43 45	84 46	9·25	2
81 170	8·4	44 9	81 7	8·57	2
74 221	9·4	44 17	75 3	10·04	1
74 222	9·4	44 29	75 2	10·18	1
77 175	8·7	44 31	77 17	8·59	1
74 223	8·8	44 57	75 2	9·79	1
541					
77 178	7·5	4 46 0	+77 37	7·98	2
86 66	8·0	46 17	86 10	7·65	26
76 186	8·8	46 36	76 20	8·99	1
80 156	9·1	46 42	80 38	8·79	3
79 159	8·8	47 41	79 46	9·08	2
82 132	8·6	47 49	82 22	8·83	1
84 93	8·5	47 56	85 4	9·03	3
80 159	8·6	48 19	80 29	8·58	3
82 133	9·0	49 40	82 25	8·84	1
83 129	9·0	49 49	83 24	9·20	1
551					
86 67	8·7	4 50 50	+86 44	9·03	57
77 179	8·3	51 45	77 52	9·04	2
76 187	8·0	51 54	76 41	8·20	2
82 136	9·3	52 39	82 21	9·03	1
78 177	8·7	53 41	78 56	9·14	2
76 188	8·1	53 47	76 30	8·33	2
79 163	8·8	54 15	79 21	8·31	2
81 174	9·4	54 49	81 50	9·00	2
75 203	8·3	55 5	75 45	8·33	2
76 189	8·2	55 29	76 29	8·95	2
561					
75 204	9·2	4 55 32	+75 34	9·10	2
85 74	6·0	56 18	85 50	6·58	19
75 207	8·0	56 24	75 21	8·41	2
75 208	7·3	56 29	75 33	7·00	2
84 97	8·8	58 14	84 45	8·63	4
81 177	9·2	59 11	81 49	8·66	2
79 165	8·9	59 16	79 37	9·20	2
85 75	8·5	4 59 49	85 37	8·62	7
75 210	8·5	5 0 23	75 20	8·93	2
81 178	8·7	0 26	81 6	8·78	3
571					
76 190	6·7	5 0 30	+76 21	6·19	2
75 212	8·3	1 31	75 36	8·45	2
75 213	8·3	2 48	75 30	8·31	2
77 187	8·5	4 23	78 0	8·45	2
75 217	7·6	4 44	75 50	8·15	2
83 137	8·7	4 53	83 43	8·45	2
78 179	8·8	5 7	78 56	9·09	2
78 180	8·0	5 12	78 16	7·96	2
85 77	9·0	5 59	85 10	9·12	2
79 169	5·2	6 4	79 7	5·54	2

548. RS Cephei, 1911 Nov. $9^d{\cdot}331$, $8^m{\cdot}73$; 1912 Mar. $6^d{\cdot}538$, $8^m{\cdot}50$; Mar. $7^d{\cdot}464$, $8^m{\cdot}52$.

Dec. +75° to +90°.

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
581					
°		h m s	° ′		
79 170	9·1	5 7 47	+79 39	9·19	2
75 220	7·5	8 42	75 5	7·93	2
81 180	9·1	8 53	81 16	9·11	2
87 38	9·3	9 3	87 25	9·89	1
85 78	7·0	9 52	85 35	6·45	15
78 183	6·8	10 25	78 19	7·56	2
75 222	8·7	11 15	75 54	8·67	2
88 26	9·4	11 20	88 34	10·32	1
78 184	9·0	11 27	78 46	8·95	2
78 185	8·9	11 34	78 52	8·93	2
591					
83 141	7·1	5 11 48	83 47	6·90	3
82 143	8·9	12 10	82 19	9·38	2
77 192	8·9	12 15	77 16	9·04	2
80 168	8·4	12 56	80 58	8·77	3
78 187	7·0	13 7	78 13	6·98	2
77 195	7·0	14 2	77 53	6·57	2
81 183	8·6	14 25	81 37	8·87	2
79 173	7·7	16 41	79 46	7·20	2
76 198	8·5	17 51	76 28	8·83	2
78 190	7·7	18 25	78 14	7·50	2
601					
77 198	8·0	5 18 44	+77 7	9·21	2
81 187	8·6	20 25	81 19	8·57	2
77 199	8·5	20 36	77 51	9·28	2
78 192	9·0	20 43	78 31	9·14	2
78 193	7·7	22 10	78 18	7·88	2
75 228	8·8	25 10	75 9	8·73	2
79 182	8·7	25 33	79 16	9·57	2
		25 34	79 16	9·30	2
76 203	7·8	25 36	76 42	8·13	2
76 204	8·2	25 47	76 18	9·01	2
611					
77 201	8·3	5 26 18	+77 28	7·65	2
76 205	9·2	26 39	76 9	8·87	2
76 206	8·3	27 43	76 24	7·93	2
77 205	8·2	27 44	77 3	8·97	2
80 177	8·2	28 4	80 20	8·61	3
77 206	9·0	28 18	77 39	9·21	2
79 183	7·7	28 50	79 34	8·48	2
85 80	6·0	29 54	85 9	7·46	6
83 149	8·7	30 19	83 34	8·60	1
78 197	8·2	30 28	78 12	8·60	2
621					
86 75	9·0	5 30 51	+87 0	9·38	8
76 208	8·6	31 7	76 20	8·63	2
77 207	8·8	31 29	77 34	9·01	2
77 209	8·8	31 45	77 3	8·94	2
75 233	8·7	33 15	75 28	8·85	3
80 181	7·9	33 40	80 34	7·82	3
85 81	8·0	34 38	85 16	8·24	6
81 192	8·5	34 59	81 45	8·51	2
84 110	9·0	36 36	84 49	9·36	3
75 236	7·5	36 37	75 41	7·76	3
631					
81 194	8·0	5 38 26	+81 20	8·43	2
85 82	8·9	39 8	85 36	9·53	2
77 217	8·5	40 9	77 54	8·91	2
82 152	7·6	40 19	82 44	7·71	2
76 211	8·1	40 31	76 51	8·17	1
85 83	9·2	41 1	85 58	9·38	6
79 188	9·0	42 36	80 0	9·32	2
84 112	9·0	43 38	84 59	8·92	4
75 240	9·1	44 1	75 18	9·44	2
87 41	7·9	45 35	87 20	9·74	3

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
641					
°		h m s	° ′		
84 114	8·9	5 46 17	+84 6	8·63	3
85 85	9·3	46 52	85 17	9·40	3
88 29	8·8	47 8	88 44	9·69	4
86 77	8·8	47 20	86 26	9·39	4
85 87	9·0	47 35	85 7	9·75	1
85 86	9·5	48 21	85 43	9·59	1
84 117	9·0	49 12	84 7	8·74	3
75 247	6·2	51 22	75 35	7·44	2
80 190	8·7	52 5	80 2	8·80	3
76 221	8·8	53 2	76 10	9·24	1
651					
84 118	8·8	5 53 48	+84 12	8·84	3
78 210	9·0	54 38	78 59	9·08	1
76 224	8·3	56 24	76 46	9·30	1
74 273	8·8	57 17	74 43	9·00	1
77 229	7·5	57 59	77 18	8·11	1
80 192	8·7	58 5	80 11	8·86	3
78 214	8·5	59 11	78 55	9·07	1
80 198	8·5	5 59 44	80 0	8·71	3
76 226	7·5	6 0 37	76 31	8·06	1
79 196	7·8	0 38	79 21	7·83	2
661					
80 202	7·8	6 2 11	+80 23	7·75	4
79 198	7·5	4 15	79 49	8·75	2
80 204	8·1	4 35	80 10	9·00	2
76 233	8·6	4 46	76 48	8·87	1
85 91	9·1	4 48	85 24	9·65	1
76 234	7·5	4 58	76 52	8·94	1
78 219	8·0	7 10	78 26	8·87	1
86 79	7·0	8 3	86 46	7·51	63
80 206	8·1	8 54	80 55	8·66	2
88 33	9·3	8 59	88 36	10·02	1
671					
83 164	8·9	9 39	83 49	9·06	2
78 220	8·1	9 53	78 50	8·78	2
75 253	7·9	10 10	75 42	8·78	2
76 237	8·8	11 18	76 17	8·65	1
77 235	8·5	11 44	77 32	8·40	2
80 207	8·3	11 45	80 21	9·06	2
85 93	9·4	12 15	85 5	9·52	2
79 200	8·3	12 24	79 43	8·95	2
78 224	7·8	13 1	78 1	8·54	2
77 237	7·7	13 25	77 58	8·32	2
681					
76 240	7·8	6 13 30	+76 4	8·43	1
78 225	7·5	13 33	78 20	8·98	2
82 168	8·5	13 37	82 36	8·93	2
77 239	8·4	14 21	77 3	8·69	2
77 240	8·7	14 35	77 20	8·56	2
85 94	8·9	15 18	85 6	9 45	2
79 201	7·5	15 52	79 32	7·97	2
77 242	9·1	16 6	77 6	9·33	1
81 218	9·0	16 18	81 23	9·33	2
79 202	7·0	16 33	79 2	7·67	2
691					
80 210	7·2	6 16 57	+80 38	8·26	3
77 243	8·3	17 20	77 6	9·12	2
88 35	9·0	17 40	88 20	9·29	12
78 226	7·5	17 41	78 14	6·83	2
76 243	8·5	17 53	76 11	8·39	1
79 205	8·6	18 14	79 15	8·72	2
77 244	8·8	18 49	77 45	8·48	2
76 244	7·5	20 57	76 56	8·48	2
77 247	7·5	21 7	78 0	7·37	2
86 86	8·9	23 0	86 3	8·99	17

Dec. +75° to +90°.

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
701		h m s	° ′		
c 79 208	6·3	6 23 6	+79 41	6·65	2
79 209	8·0	23 18	79 12	7·97	2
82 177	6·7	23 23	82 12	6·70	2
82 176	8·8	23 32	82 30	9·19	1
87 45	8·9	24 19	87 23	9·08	27
75 258	7·6	24 56	75 47	8·11	2
78 227	6·0	24 57	78 5	6·94	2
75 260	8·8	27 43	75 20	9·09	2
80 217	7·3	29 3	80 20	8·07	3
79 212	5·5	29 10	79 40	5·81	2
711					
75 263	8·5	6 29 11	+75 50	8·49	2
75 264	8·0	29 54	75 9	8·01	3
76 249	7·5	30 7	76 41	7·68	2
77 254	8·9	32 55	77 32	9·03	2
77 255	8·7	33 29	77 29	8·52	2
86 92	9·2	33 58	86 0	9·72	2
77 256	8·3	33 59	77 5	9·03	2
84 135	8·2	34 4	84 47	7·90	5
86 91	9·0	34 58	86 28	9·15	13
87 46	8·5	35 28	87 32	8·95	75
721					
85 98	8·6	6 36 7	+85 42	9·49	3
78 233	7·8	37 10	78 12	8·27	2
77 259	7·8	37 26	77 20	7·55	2
78 234	7·3	38 44	78 7	7·86	2
89 9	9·1	38 56	89 28	10·09	1
81 227	8·8	39 28	81 3	9·01	2
85 101	8·9	40 4	85 20	8·86	5
83 172	8·5	41 6	83 45	9·12	2
82 189	9·2	42 4	82 44	9·13	1
79 218	9·1	42 17	79 5	8·75	2
731					
75 272	9·4	6 43 26	+75 17	9·33	2
81 228	9·1	45 2	81 9	9·25	2
75 273	7·5	45 6	75 19	8·00	3
77 266	4·7	45 29	77 6	5·94	2
79 222	8·0	45 59	79 18	8·56	2
80 225	9·2	46 27	80 8	9·38	1
75 276	8·2	47 38	75 4	8·24	2
83 177	9·0	47 43	83 9	9·42	1
89 10	9·5	49 11	89 5	10·19	1
86 96	8·5	50 12	86 29	8·92	45
741					
83 178	8·9	6 50 23	+83 9	8·97	2
75 281	6·8	50 45	75 22	7·31	1
K 1237	7·8	50 47	75 23	9·36	1
75 280	7·0	50 48	75 33	7·67	2
85 105	8·2	51 7	85 54	8·12	17
76 258	8·0	52 41	76 19	8·80	2
83 181	9·0	53 9	83 1	9·71	1
80 227	8·6	53 11	80 42	8·03	3
87 51	5·0	53 44	87 12	6·55	70
82 194	8·0	54 37	82 36	8·74	1
751					
78 240	6·7	6 57 59	+78 55	7·01	2
89 11	9·5	59 7	89 2	10·69	1
83 182	8·2	59 13	83 39	8·34	3
77 276	8·5	59 31	77 13	8·36	2
77 277	9·2	6 59 43	77 50	9·21	2
76 263	9·1	7 0 27	76 33	9·06	2
81 239	7·8	2 17	81 2	9·03	2
75 291	8·3	4 1	75 22	8·25	2
78 243	8·0	4 47	77 57	9·30	2
80 230	7·4	5 46	80 48	7·94	4

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
761		h m s	° ′		
76 268	9·2	7 5 49	+76 1	9·14	2
81 242	6·3	6 24	81 26	6·18	2
78 246	7·0	7 44	78 5	7·86	2
81 243	9·0	8 12	81 10	8·84	2
75 296	7·0	8 46	75 16	6·74	3
82 201	5·5	10 3	82 36	6·65	1
78 250	6·5	10 8	78 26	8·11	2
86 102	9·1	10 24	86 33	8·49	46
78 251	7·0	11 7	78 14	7·37	2
86 103	8·2	11 29	86 35	8·11	46
771					
77 284	8·5	7 13 35	+77 42	8·40	2
79 237	8·3	13 38	79 5	8·54	2
75 300	7·7	13 38	75 48	7·17	2
84 152	8·0	13 44	84 24	8·88	3
78 253	8·7	14 42	78 24	9·04	2
82 204	8·5	14 55	82 12	8·52	1
81 252	7·0	16 27	81 6	7·20	2
88 39	8·5	16 37	87 57	9·02	35
77 286	7·4	17 2	77 9	8·04	1
78 254	6·8	17 31	78 54	7·58	2
781					
75 304	7·6	7 17 48	+75 0	8·34	2
77 289	8·9	18 29	77 16	8·91	1
75 305	8·0	18 56	75 32	8·04	2
82 207	8·9	20 6	82 53	8·62	1
77 290	8·0	22 2	77 3	9·15	1
80 233	8·0	25 11	80 47	8·74	2
76 284	7·3	25 47	76 1	7·97	1
83 191	8·0	25 56	83 18	8·96	3
82 213	7·5	27 41	81 55	7·71	1
75 312	7·7	29 10	75 48	7·88	2
791					
77 293	8·2	7 29 15	+76 59	8·16	1
83 195	9·0	30 6	82 57	8·88	2
76 292	8·0	31 24	76 18	9·15	1
76 293	8·5	32 4	76 2	8·31	1
77 297	8·0	34 29	77 14	8·31	1
76 296	8·6	35 40	76 16	8·93	1
80 237	8·7	36 52	80 46	9·55	2
78 270	8·0	37 11	78 28	8·13	2
84 161	9·3	37 13	84 11	9·49	3
81 257	7·2	38 55	81 36	8·25	2
801					
75 316	8·8	7 39 16	+75 29	8·92	3
80 238	6·5	39 46	80 31	7·04	2
84 163	9·0	40 4	84 11	8·95	3
86 107	9·2	40 10	86 37	9·32	6
79 258	8·8	40 11	78 59	8·80	2
79 259	8·0	40 38	79 46	8·77	2
77 302	9·0	43 12	77 53	8·36	2
80 240	6·5	43 21	80 7	7·91	2
77 303	7·0	43 29	77 50	6·89	2
84 168	7·8	45 46	84 41	7·35	4
811					
78 273	7·7	7 45 54	+77 55	8·54	2
86 109	9·1	46 7	86 44	9·90	2
86 110	8·7	46 56	86 40	9·59	3
80 241	8·7	48 16	79 54	8·55	2
82 222	9·1	48 59	82 41	9·17	1
79 265	5·8	49 4	79 45	5·49	2
75 321	8·1	49 9	75 43	8·73	3
80 242	8·9	49 22	80 30	8·96	2
82 224	8·7	50 26	81 59	9·22	1
82 226	9·0	50 50	81 58	9·19	1

742–3. Images touching; measures unsatisfactory.

Dec. +75° to +90°.

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
821		h m s	° ′		
76° 302	8·5	7 51 5	+76 50	8·97	2
76 303	8·8	51 13	76 20	9·03	2
78 275	8·5	51 41	78 33	8·81	2
88 41	9·3	51 51	88 40	9·80	5
86 113	7·2	52 26	85 59	8·00	23
82 228	9·2	52 33	82 45	9·14	1
77 311	8·7	52 57	77 23	8·81	2
84 169	6·0	53 1	84 21	6·32	4
84 170	9·3	53 53	84 36	9·43	3
81 263	8·1	54 28	81 20	9·12	2
831					
82 231	8·3	7 55 8	+82 3	8·38	2
78 278	7·5	57 4	77 56	8·10	2
79 267	8·5	57 29	79 31	8·79	2
77 313	8·0	58 1	76 56	8 86	2
89 13	7·0	58 3	88 56	7·03	89
75 325	8·8	7 58 32	75 15	8·71	2
75 327	8·4	8 0 45	75 40	9·12	2
79 269	7·8	1 6	79 48	8·54	2
K 1519	9·2	1 8	79 48	8·69	2
76 307	7·8	1 43	76 8	8·18	2
841					
84 173	8·8	8 1 52	+84 19	8·34	4
83 207	8·2	3 36	83 24	7·81	1
76 308	7·5	4 14	76 3	7·91	2
76 309	8·3	4 55	76 31	8·24	2
82 235	6·5	5 13	82 44	6·21	2
84 175	9·2	5 34	84 27	9·66	2
76 310	6·0	6 59	76 4	6·36	2
88 43	9·2	7 43	88 41	9·47	9
76 315	8·3	8 28	76 12	8·90	2
87 63	9·4	8 33	86 56	9·98	2
851					
76 316	8·2	8 8 48	+76 41	8·70	2
75 334	6·5	10 9	75 8	7·00	3
78 284	7·5	10 46	78 15	8·10	2
77 327	7·0	11 44	77 17	7·91	2
84 178	8·9	14 19	84 33	9·37	3
79 272	8·6	15 13	79 44	8·96	2
84 179	8·3	15 28	84 47	8·43	10
77 330	7·7	16 22	77 23	7·86	2
78 287	6·8	16 58	78 33	7·70	2
89 15	9·2	19 9	88 54	9·83	1
861					
86 120	8·5	8 19 49	+86 8	9·14	5
76 326	8·8	20 18	76 4	8·83	2
80 258	8·8	20 52	79 51	8·77	3
75 341	8·3	23 28	75 31	8·34	2
84 183	9·2	23 33	84 28	9·39	3
77 337	7·2	24 20	77 23	7·48	2
78 288	9·0	24 36	78 41	9·08	1
75 342	6·4	25 10	75 4	6·45	3
85 128	7·5	25 20	85 24	7·55	12
87 68	8·8	26 9	87 15	8·74	70
871					
87 69	9·1	8 26 59	+87 1	9·53	8
87 67	9·1	27 11	87 46	9·47	7
82 251	8·7	27 16	82 41	8·86	2
85 129	8·2	27 36	85 33	9·17	4
82 253	7·0	28 20	82 36	6·63	2
89 12	9·1	30 32	89 32	9·85	2
87 71	9·2	32 16	87 13	9·22	20
80 266	8·4	32 41	80 1	8·72	2
81 270	8·0	33 48	80 51	8·39	2
78 291	7·0	35 2	78 3	7·64	1

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
881		h m s	° ′		
80° 267	8·3	8 35 6	+80 50	8·57	2
84 186	8·0	35 21	84 16	7·82	3
84 187	9·2	35 28	83 55	9·08	3
78 292	8·6	35 55	78 12	8·85	1
80 268	8·3	36 31	80 22	8·61	3
78 293	6·5	37 31	78 32	8·57	1
75 350	9·0	39 59	75 29	9·13	2
80 272	7·3	40 51	80 24	7·33	3
83 232	7·0	41 48	83 6	7·91	2
86 124	9·4	41 55	86 49	10·04	1
891					
81 273	7·6	8 42 47	+81 40	7·80	2
87 72	9·3	44 16	87 10	9·69	2
83 233	7·0	44 32	83 8	7·22	2
78 297	6·9	45 22	78 32	7·38	1
80 276	8·7	45 41	79 52	9·24	2
86 126	8·0	47 1	85 57	8·99	11
85 132	8·2	48 16	85 6	8·34	5
83 236	8·5	49 8	83 34	9·04	2
76 335	7·5	51 44	76 48	8·24	1
79 294	7·0	51 47	79 44	7·47	2
901					
77 351	9·0	8 52 29	+76 51	8·83	1
81 278	7·9	52 41	81 26	7·89	3
76 336	8·3	52 47	76 5	8·28	1
85 135	9·0	53 19	84 53	8·99	3
81 279	8·4	53 25	81 29	8·75	3
83 238	9·0	53 57	83 31	8·99	2
75 359	8·4	54 20	75 5	8·83	2
84 196	6·0	54 32	84 35	6·68	3
76 338	9·0	54 48	76 44	9·25	1
81 282	6·7	56 18	81 14	6·48	3
911					
84 199	8·6	8 56 34	+84 2	8·38	3
83 240	9·0	56 47	83 17	9·13	2
83 239	9·0	57 2	83 45	8·82	3
77 355	8·7	57 52	77 31	8·69	1
86 132	9·0	59 9	86 18	9·23	2
75 362	8·9	8 59 46	75 30	8·95	2
81 285	8·7	9 1 9	81 25	8·55	3
75 365	7·0	2 51	75 41	8·16	2
83 243	8·3	3 3	83 2	8·26	2
79 300	7·3	3 59	79 42	7·58	2
921					
82 265	8·8	9 4 8	+82 45	8·59	1
77 359	6·8	5 16	77 29	6·91	1
78 301	9·0	6 14	77 53	9·41	1
83 245	8·6	7 5	83 20	8·50	1
78 303	7·9	7 42	78 23	8·45	2
85 142	8·5	8 42	85 38	8·76	11
80 287	7·8	10 14	80 33	8·49	3
77 364	8·3	11 20	77 39	8·57	1
75 370	7·3	11 26	75 20	7·34	2
82 268	8·5	11 28	82 18	8·55	1
931					
83 248	8·4	9 11 32	+83 7	8·46	1
76 348	8·1	11 49	76 6	7·88	1
75 373	8·4	13 16	75 24	9·08	2
75 374	8·9	14 9	75 40	8·68	2
79 305	7·4	14 13	78 52	8·59	2
K 1794	8·0	14 15	78 51	8·93	2
84 206	8·0	14 53	84 10	8·87	3
75 377	6·2	17 22	75 32	6·20	2
87 78	8·0	17 58	87 18	8·21	71
77 370	8·5	19 20	77 31	8·49	2

Dec. +75° to +90°.

B.D. No.	Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
941		h m s	° ′		
85° 147	8·5	9 19 31	+85 32	9·50	3
83 256	7·2	20 29	83 22	7·24	1
88 54	9·3	21 14	88 45	9·94	1
78 310	8·2	22 18	78 8	8·88	2
81 302	4·3	22 51	81 46	5·65	2
84 212	8·5	24 1	84 17	8·40	2
78 312	8·7	26 8	78 41	8·83	2
75 381	9·0	26 15	75 28	9·00	2
83 262	7·5	26 27	82 49	7·52	1
88 55	9·1	27 0	88 13	9·90	1
951					
76 358	8·0	9 27 25	+76 37	8·87	2
87 79	8·5	27 57	87 34	9·11	29
75 386	6·8	28 28	75 39	7·44	3
81 308	8·9	28 34	81 7	8·93	2
87 80	8·5	28 56	86 54	9·42	9
80 295	8·6	30 16	80 34	9·07	2
79 316	7·5	30 29	79 17	7·99	2
76 360	7·3	30 37	75 53	8·09	2
84 213	8·3	30 47	84 14	9·26	2
78 315	8·2	31 7	78 0	8·78	2
961					
84 216	8·7	9 31 31	+84 12	9·07	2
83 263	8·0	32 34	83 47	8·02	2
77 378	7·8	32 52	77 41	8·69	2
84 218	8·3	33 24	83 58	9·03	2
78 317	6·8	34 11	78 35	7·28	2
75 389	6·8	34 38	75 3	6·78	2
85 150	8·0	34 44	84 57	8·51	5
77 379	8·4	35 25	77 10	8·38	2
79 319	6·0	35 27	79 36	6·32	2
76 363	8·5	36 49	76 45	8·63	2
971					
81 313	9·0	9 37 5	+81 25	8·98	2
85 151	8·5	37 29	84 51	8·56	4
78 321	9·1	38 5	78 17	9·18	2
87 81	9·2	38 17	87 45	9·50	8
78 322	9·2	39 55	78 23	9·10	2
87 82	8·9	40 23	87 37	9·20	23
75 394	8·8	40 29	75 26	9·18	2
75 395	9·0	41 38	75 4	9·20	2
83 270	8·5	43 23	83 1	9·19	1
87 83	7·7	43 57	87 3	8·50	69
981					
84 222	8·0	9 44 15	+83 57	8·44	2
78 327	7·1	46 4	78 25	8·35	2
76 368	8·9	46 30	76 37	9·40	2
81 319	7·4	46 52	80 51	8·39	2
77 389	7·4	47 44	77 5	8·19	2
84 223	8·8	47 46	84 6	9·14	2
81 320	8·4	48 32	80 53	8·95	2
76 371	7·8	50 47	76 31	9·22	2
84 225	6·5	52 37	84 24	7·69	3
75 399	7·2	52 39	75 14	7·69	2
991					
86 143	8·6	9 58 11	+86 19	8·14	35
83 280	7·1	59 35	82 53	8·63	1
85 154	8·9	9 59 36	84 56	9·62	1
83 281	8·5	10 0 5	83 8	9·14	2
76 375	8·4	0 10	76 17	8·80	2
78 337	8·5	0 58	77 58	8·71	2
86 146	8·9	2 20	85 56	8·95	11
87 85	8·5	3 59	87 46	8·96	81
85 155	8·7	4 1	85 47	9·23	6
80 313	9·0	5 12	79 58	9·49	2

B.D. No.	Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1001		h m s	° ′		
76° 377	8·3	10 5 32	+76 42	9·22	2
79 328	6·7	5 49	79 27	6·82	2
76 380	8·3	7 34	75 56	8·74	1
75 409	8·5	8 17	75 42	9·08	2
76 381	8·8	8 18	76 21	9·31	1
76 382	9·0	9 0	76 10	9·17	1
85 158	9·0	10 51	85 24	9·33	3
79 329	8·0	11 7	79 16	8·05	2
83 287	6·8	11 43	83 18	7·70	3
83 289	9·1	12 34	83 5	9·12	2
1011					
79 330	7·3	10 13 30	+78 51	8·24	2
76 385	8·7	13 55	76 8	9·39	1
82 300	8·1	14 38	82 1	8·75	1
82 301	8·6	14 52	81 47	9·02	1
84 234	5·0	15 9	84 46	5·85	5
77 399	9·0	15 20	77 10	9·28	1
76 386	7·7	15 57	76 11	8·63	1
75 412	8·2	16 6	75 17	8·58	2
84 237	8·5	16 44	84 4	8·93	3
81 337	7·9	17 13	81 42	7·98	2
1021					
83 296	8·4	10 18 18	+83 11	8·84	2
76 387	9·0	18 22	76 13	9·40	1
86 152	8·4	18 34	86 34	8·39	42
87 89	9·3	18 46	86 52	9·66	5
83 297	5·2	18 55	83 4	5·63	2
76 388	8·0	18 59	76 25	9·13	1
88 60	8·5	19 25	88 23	8·86	88
85 160	8·5	19 55	85 45	8·56	11
85 161	7·5	20 45	84 55	7·89	5
82 305	8·9	20 50	82 7	9·05	2
1031					
78 349	7·3	10 22 53	+78 1	8·62	1
82 307	8·2	23 26	82 32	7·79	2
81 343	6·2	25 44	81 1	7·25	2
77 404	7·8	26 2	77 15	8·45	1
76 393	5·0	26 36	76 14	5·92	1
82 308	7·7	27 38	82 6	8·48	2
78 354	7·8	28 21	78 36	8·26	1
76 396	9·1	29 15	76 14	9·40	1
85 165	8·9	29 25	85 8	9·22	3
77 405	8·3	30 45	76 58	8·22	1
1041					
85 166	8·4	10 31 7	+85 16	9·04	4
81 347	8·4	32 20	81 45	8·62	2
77 406	8·0	32 39	77 45	8·04	1
75 420	9·5	33 27	75 2	9·45	2
82 313	8·9	33 29	82 5	8·75	2
81 349	6·2	33 38	80 57	6·63	2
79 340	9·0	34 20	79 43	9·13	2
78 359	7·0	34 30	77 56	7·39	1
75 424	8·4	39 42	75 3	9·31	2
86 154	8·2	40 40	85 54	8·25	21
1051					
77 410	8·3	10 40 53	+77 24	8·79	1
80 335	8·8	42 59	80 6	9·19	2
75 425	8·6	43 27	75 34	9·01	3
76 402	7·0	43 27	76 31	7·16	1
80 338	7·5	45 47	79 53	8·56	2
80 339	8·5	46 38	80 44	8·92	2
85 170	8·6	46 43	84 53	9·08	3
77 412	6·8	47 11	77 37	8·29	1
80 344	8·6	49 25	80 19	9·07	2
80 347	7·8	50 41	80 13	7·50	3

Dec. +75° to +90°.

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1061		h m s	° ′		
82° 320	8·8	10 51 28	+81 48	8·91	2
76 406	7·3	51 29	76 15	7·75	2
78 367	6·2	51 58	78 18	7·01	2
83 312	8·5	52 0	83 46	8·56	3
82 321	8·8	52 3	82 43	9·31	1
78 368	8·0	52 14	78 14	8·04	2
77 417	8·5	52 26	77 10	9·32	1
82 322	8·5	52 51	82 13	9·14	2
75 431	8·0	52 59	75 19	8·21	2
79 348	7·3	53 14	79 25	8·09	2
1071					
76 411	8·0	10 56 5	+75 59	8·23	2
81 359	8·2	56 39	81 35	8·72	2
86 159	8·3	57 0	86 5	8·21	30
77 419	8·4	57 44	76 59	8·00	2
86 160	9·2	58 13	86 26	10·00	1
83 318	8·2	10 58 50	83 17	8·50	2
81 360	8·6	11 0 26	80 59	8·88	2
89 17	9·0	0 26	89 18	9·54	9
82 325	7·0	2 13	82 17	7·60	2
78 375	6·5	2 26	78 20	8·42	2
1081					
86 161	7·2	11 2 30	+86 11	7·26	35
81 362	8·2	2 35	81 29	8·09	2
88 64	7·5	4 13	88 11	7·19	91
79 352	8·0	5 5	79 27	9·09	2
78 378	8·0	5 57	78 10	8·80	2
78 380	8·3	7 2	78 17	8·88	2
79 356	7·2	8 48	78 51	7·89	2
80 350	8·0	9 0	80 5	8·86	2
76 421	7·6	10 17	75 54	8·65	2
78 381	8·5	10 20	77 50	8·85	2
1091					
84 252	8·4	11 10 56	+83 54	9·40	2
81 366	8·3	11 15	81 31	9·35	2
75 439	7·8	12 40	75 38	8·74	2
76 423	8·3	12 46	76 43	8·41	2
86 163	8·9	13 0	86 36	9·25	14
77 432	8·3	15 27	77 37	8·94	2
78 385	6·8	15 58	77 55	7·68	2
77 433	8·5	17 1	76 53	8·78	2
86 165	9·0	17 18	86 11	9·36	6
88 65	9·3	19 9	88 26	9·90	1
1101					
81 369	9·0	11 19 33	+81 6	9·13	2
80 356	8·4	20 43	80 19	8·46	2
82 332	8·3	22 59	82 39	8·99	1
81 371	8·0	23 3	81 35	8·54	2
85 183	7·5	24 23	85 15	7·93	13
81 373	6·2	24 48	81 41	6·25	3
86 169	9·1	25 8	86 4	9·28	10
84 256	8·6	26 11	84 14	9·36	2
85 184	9·3	27 16	85 11	9·47	2
81 375	9·0	28 0	81 22	9·25	2
1111					
86 170	7·0	11 28 19	+86 10	7·38	39
82 338	9·0	29 23	81 51	9·46	1
78 392	6·2	31 26	78 9	7·96	2
78 393	8·9	32 15	78 1	8·95	2
82 342	8·0	33 16	82 38	8·96	1
75 455	7·8	33 37	75 35	8·92	3
81 381	9·0	33 48	80 53	9·19	2
89 18	8·9	35 1	89 29	9·42	86
81 384	8·5	35 55	81 8	8·54	2
82 343	8·6	36 45	82 3	8·88	1

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1121		h m s	° ′		
84° 260	8·4	11 38 0	+83 59	8·67	3
83 336	7·7	38 4	82 53	8·58	1
86 171	8·6	38 26	85 54	9·00	16
80 363	9·0	39 27	80 34	9·24	2
86 172	8·2	40 8	86 5	8·61	35
77 440	8·6	41 37	77 36	8·97	1
77 441	8·5	41 57	76 47	8·90	1
85 190	9·0	44 35	85 21	9·40	4
85 191	8·4	44 57	85 33	8·61	16
83 339	8·0	45 12	83 13	8·41	1
1131					
76 434	7·3	11 45 23	+75 55	8·15	1
87 99	8·8	47 26	86 47	8·65	58
82 348	8·3	48 26	82 30	9·14	1
79 378	8·9	49 46	78 51	9·29	1
81 388	8·0	52 45	81 11	8·28	2
87 100	9·0	54 19	87 33	9·36	2
80 370	7·5	54 32	80 9	8·06	2
87 101	8·0	54 36	87 33	7·90	84
81 389	6·2	55 6	81 25	7·58	2
78 402	9·2	55 14	78 27	9·50	1
1141					
79 381	8·5	11 56 7	+79 39	8·65	1
87 102	9·0	56 32	86 55	9·52	6
76 437	8·8	56 36	75 45	8·97	1
78 404	8·8	57 44	78 15	8·95	1
82 355	7·6	58 17	82 15	8·21	1
76 439	7·7	58 50	76 37	7·60	1
77 458	8·8	58 59	76 54	9·38	1
86 176	5·7	11 59 43	86 8	6·64	40
77 460	7·4	12 0 1	77 19	7·47	1
77 461	5·8	0 10	77 28	6·76	1
1151					
75 467	8·6	12 1 34	+75 14	8·79	2
77 462	8·0	3 59	76 51	8·82	1
75 469	6·7	4 56	75 13	6·60	2
78 406	7·0	5 5	77 57	7·66	1
78 407	9·2	5 24	77 55	9·35	1
78 408	9·3	5 38	78 2	9·39	1
78 409	9·0	6 17	77 59	8·76	1
82 356	6·7	6 31	82 16	7·32	1
85 196	8·2	6 33	85 38	8·48	16
85 197	8·9	6 40	85 30	9·57	2
1161					
86 177	8·5	12 6 53	+86 16	8·76	39
78 410	9·0	6 55	78 5	8·21	1
82 357	8·9	7 2	82 16	8·27	1
78 411	7·3	7 6	78 0	6·66	1
78 412	5·1	7 31	78 10	5·63	1
87 104	8·2	8 8	87 29	8·85	80
79 386	9·2	8 30	78 57	9·48	1
84 269	7·5	8 47	84 4	8·39	3
80 377	9·3	8 53	79 58	9·23	2
79 387	9·1	9 6	79·0	9·23	1
1171					
80 380	8·4	12 11 48	+80 41	7·92	3
80 381	8·3	11 52	80 41	7·30	3
78 416	9·0	13 43	78 6	9·36	1
87 107	6·5	13 56	86 59	6·54	81
75 470	5·8	14 21	75 43	5·59	2
88 71	6·5	14 23	88 15	6·49	91
88 72	9·3	15 15	88 20	9·56	9
87 108	9·2	16 26	87 6	9·69	5
80 383	8·5	16 29	80 34	9·37	2
84 274	7·2	16 32	83 56	8·54	2

Dec. +75° to +90°.

B.D. No.	Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1181					
		h m s	° ′		
83 352	8·4	12 18 52	+83 13	8·87	2
86 180	8·4	20 22	85 52	8·66	16
81 397	8·5	20 25	81 23	9·04	2
84 276	7·9	20 45	83 59	8·37	2
83 354	8·6	21 11	83 13	8·85	2
76 449	8·2	22 2	76 16	8·92	2
77 474	8·1	22 28	76 56	8·26	2
78 420	9·0	22 53	78 30	8·61	2
82 363	8·9	23 17	82 2	9·31	1
79 393	8·6	24 12	78 47	9·24	2
1191					
87 109	9·5	12 24 22	+87 39	10·00	1
82 365	8·0	25 14	82 33	8·11	1
77 475	7·5	27 2	77 14	8·26	2
78 423	9·0	28 1	78 18	9·04	2
75 473	7·0	28 1	75 22	8·00	1
75 474	8·7	28 9	75 2	8·89	3
76 454	6·7	29 48	75 46	8·11	2
81 399	8·1	30 15	81 30	8·83	2
76 457	8·5	30 58	76 34	8·94	1
81 400	6·8	31 7	80 48	7·30	3
1201					
85 202	9·0	12 32 4	+85 14	9·71	1
79 396	8·8	32 40	79 28	9·12	2
80 389	6·7	34 8	79 46	7·31	2
86 182	6·5	34 36	86 17	7·18	38
76 462	7·2	36 58	76 27	8·28	2
75 480	8·7	37 4	75 33	8·79	2
80 390	9·2	37 6	79 50	9·05	2
76 463	8·1	37 36	76 44	9·04	2
79 400	8·7	37 44	79 34	8·38	2
84 286	7·0	37 46	84 12	7·70	3
1211					
76 464	8·3	12 38 20	+75 54	8·59	2
79 403	9·0	40 13	78 48	8·70	2
87 112	9·1	40 39	87 30	9·74	4
80 393	8·3	40 42	80 9	9·26	2
80 394	9·2	40 50	80 8	9·64	2
75 483	8·9	40 52	75 33	8·34	2
75 484	8·7	41 20	75 10	9·03	3
81 402	6·3	41 54	81 10	6·35	3
87 113	8·9	42 8	87 2	9·43	9
89 21	8·8	42 9	89 14	9·33	86
1221					
80 395	7·4	12 42 19	+80 28	8·47	3
79 404	9·3	42 24	79 25	9·22	1
76 466	8·5	43 24	75 47	8·91	2
86 184	8·8	44 50	86 0	9·16	14
82 374	8·5	45 6	82 15	9·24	1
88 75	9·0	46 1	88 31	9·16	25
81 407	7·6	46 36	80 57	8·20	3
83 365	8·6	47 48	82 58	9·19	2
84 289	6·5	48 16	83 58	6·25	2
84 290	5·5	48 23	83 57	5·71	2
1231					
75 489	8·5	12 50 40	+75 12	8·39	3
77 491	7·7	50 53	77 29	8·30	2
76 470	6·8	51 7	75 57	7·65	2
89 22	8·7	51 33	88 54	9·97	1
79 407	7·0	52 45	79 3	8·59	2
85 209	8·5	53 4	85 14	9·38	3
83 369	7·5	53 9	83 4	7·95	2
82 378	8·5	53 22	82 42	8·93	1
77 495	8·5	54 6	77 45	8·67	2
85 211	8·7	54 56	85 40	9·57	4
1241					
		h m s	° ′		
80 398	8·3	12 55 29	+80 27	8·06	3
76 473	6·0	55 50	76 1	6·92	2
77 498	8·8	57 21	76 59	9·23	2
87 115	8·4	58 7	87 12	8·73	86
76 474	8·8	58 12	76 38	9·14	2
79 410	9·0	58 21	79 27	9·47	2
81 412	7·0	58 38	81 25	7·67	2
86 187	7·0	59 43	86 25	7·87	47
83 373	8·3	12 58 53	83 28	8·11	2
85 213	8·5	13 0 27	85 7	9·18	2
1251					
85 214	8·6	13 1 17	+84 48	9·43	3
78 446	8·5	1 57	77 59	9·29	2
78 447	8·0	3 34	78 14	9·07	2
75 498	9·0	3 46	75 17	8·79	2
77 501	9·3	3 48	76 50	9·77	2
77 502	8·7	3 58	76 50	9·23	2
88 76	8·0	4 30	88 11	8·65	91
84 296	8·6	4 35	84 10	9·20	3
87 117	9·1	5 49	86 46	9·33	9
75 500	8·0	6 41	75 43	8·20	2
1261					
76 478	8·8	13 7 27	+76 7	9·12	1
78 451	8·7	8 5	78 34	9·29	1
80 403	8·8	8 57	80 33	8·83	3
86 188	9·1	9 40	86 15	9·85	2
84 301	8·8	9 52	84 12	9·40	3
77 506	7·6	10 20	77 43	7·47	2
77 505	8·3	10 24	76 49	8·84	2
80 404	7·5	11 12	80 11	8·20	2
84 302	8·7	11 13	83 55	9·10	4
84 303	9·0	11 24	84 42	9·30	5
1271					
81 416	6·3	13 11 32	+81 0	6·94	4
79 418	7·5	13 35	79 14	8·26	2
87 118	8·6	13 36	87 39	9·58	7
75 504	9·1	15 52	75 5	9·38	2
82 390	8·4	16 31	82 2	8·42	2
84 305	8·5	17 24	84 26	9·38	4
85 222	7·0	18 39	85 17	7·45	7
79 419	8·5	18 48	78 51	8·80	2
80 409	8·9	19 22	79 58	9·28	2
87 121	8·9	20 14	86 51	9·42	10
1281					
84 307	8·0	13 20 30	+84 26	7·65	4
85 224	8·8	21 33	85 29	9·82	1
77 509	8·3	22 41	76 49	9·09	1
77 510	8·4	23 5	77 26	8·68	1
76 486	8·0	23 30	76 30	8·44	1
78 462	8·3	24 56	78 14	8·85	1
87 122	8·8	25 8	87 5	8·39	89
79 422	6·0	26 6	79 10	6·45	2
86 191	9·0	26 13	86 18	9·29	14
84 311	7·5	26 43	83 49	7·68	4
1291					
88 77	8·5	13 26 45	+88 4	8·56	91
79 424	9·3	27 2	79 30	9·29	1
75 507	7·5	27 43	75 24	8·53	2
82 395	8·5	28 25	81 47	8·58	2
76 491	6·7	31 14	76 35	7·86	1
82 397	8·6	32 5	82 30	8·69	2
86 193	7·5	32 25	85 47	7·96	17
77 515	7·5	32 36	76 48	8·82	1
76 492	7·0	32 36	76 19	7·73	1
77 516	6·0	33 23	77 3	7·82	1

1195. As one mass. Components $8^{m}\cdot2$, $10^{m}\cdot3$.

Dec. +75° to +90°.

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1301		h m s	° ′		
87 124	9·0	13 34 47	+87 1	9·42	13
76 493	7·8	35 7	76 25	8·52	1
80 417	7·5	36 39	79 52	8·77	2
78 464	8·0	37 13	78 24	8·05	1
81 440	8·7	37 47	80 59	8·85	2
77 519	6·2	39 42	77 21	6·52	1
87 125	9·0	39 51	86 50	9·73	3
75 516	8·0	40 22	75 7	8·51	3
81 443	8·5	41 23	81 34	8·88	2
82 402	9·0	41 52	82 12	9·39	2
1311					
78 466	5·8	13 42 13	+78 34	6·89	2
80 421	7·1	42 16	80 42	8·35	2
85 233	8·5	42 33	85 46	8·96	9
83 397	6·5	45 10	83 15	6·76	2
76 500	7·5	46 20	76 5	8·16	1
77 522	8·9	46 47	77 39	9·17	1
87 127	9·0	46 55	87 40	9·78	3
76 501	9·2	48 17	76 2	9·23	1
76 502	7·0	48 27	76 4	7·68	1
80 422	7·4	49 55	80 25	8·02	2
1321					
79 431	6·6	13 50 22	+79 29	7·65	2
87 129	8·5	51 15	86 59	9·74	1
85 234	7·0	51 29	85 1	8·69	7
89 25	9·0	51 32	89 29	9·63	6
81 452	6·8	52 27	81 16	7·56	2
84 317	8·8	52 36	84 37	9·40	3
88 80	8·6	53 38	87 48	8·86	90
76 504	8·3	54 4	76 45	9·14	2
77 523	7·3	54 38	76 59	9·17	2
86 199	8·5	54 39	86 1	9·05	27
1331					
87 130	8·7	13 54 49	+87 6	9·80	1
79 434	7·7	55 10	79 28	8·74	2
79 433	7·7	55 15	78 53	7·58	2
79 435	8·1	56 15	79 11	8·13	2
85 235	8·8	56 21	85 41	9·53	3
82 407	8·2	59 7	82 6	8·26	1
86 201	7·5	13 59 24	86 14	7·35	39
75 526	8·4	14 4 8	75 3	8·33	2
77 528	9·0	4 15	77 9	8·85	2
75 527	7·5	4 40	75 12	8·32	3
1341					
77 529	7·8	14 5 21	+77 27	7·79	2
75 529	6·7	6 9	75 4	6·43	3
87 133	8·8	7 16	86 58	9·76	2
78 478	5·0	9 14	78 1	6·19	2
81 464	8·8	9 59	81 38	9·02	2
88 85	9·1	10 35	88 20	10·05	1
76 515	8·7	14 39	76 5	9·09	2
76 518	9·2	15 57	75 54	9·08	2
81 469	9·2	16 38	81 37	9·39	2
80 432	8·3	17 37	80 28	8·67	2
1351					
88 86	8·5	14 18 6	+87 52	8·58	92
79 443	7·8	18 8	79 48	9·28	2
76 520	7·8	18 32	76 8	8·50	2
75 531	8·5	19 54	75 20	9·02	3
77 540	8·5	20 13	77 9	9·14	2
75 532	7·5	21 11	75 31	8·48	3
85 239	8·5	22 1	85 1	9·02	7
77 541	8·9	23 26	77 7	9·33	2
87 138	9·3	24 40	87 46	10·04	1
85 240	9·0	26 22	85 46	9·71	1

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1361		h m s	° ′		
81 477	8·6	14 26 35	+81 2	8·99	2
76 527	5·0	27 44	76 8	5·88	2
81 479	9·0	27 48	81 30	9·35	2
79 447	6·8	28 18	78 57	7·49	2
76 528	8·3	29 18	76 13	8·79	2
86 211	8·5	30 2	86 3	9·02	16
82 423	9·0	30 59	82 24	8·86	1
77 548	8·2	31 52	77 0	8·30	2
75 539	7·8	32 13	75 43	9·13	2
84 326	8·6	32 38	84 10	9·19	2
1371					
81 482	6·7	14 32 57	+81 15	7·29	2
83 417	8·7	33 2	83 0	9·25	1
81 483	8·7	34 16	81 0	8·72	2
82 427	8·8	35 10	81 53	9·45	1
75 541	8·0	35 11	75 1	8·82	2
84 328	8·6	36 19	83 55	9·25	2
84 327	8·5	36 21	83 54	9·26	2
80 448	6·3	36 23	80 6	7·59	2
85 242	8·0	38 4	85 43	9·49	3
81 485	8·7	38 21	81 8	9·08	2
1381					
86 212	9·0	14 40 37	+86 13	9·63	2
80 451	7·0	41 57	80 13	8·71	2
83 423	8·5	42 57	82 54	8·77	1
87 141	9·3	43 45	87 44	9·91	2
85 247	8·5	47 10	85 17	9·16	3
86 215	8·6	47 32	86 35	9·43	7
76 536	7·5	48 8	76 27	7·52	1
86 217	6·8	49 38	86 22	7·71	57
78 497	8·4	53 4	77 53	8·85	1
78 498	8·0	53 36	77 49	8·70	1
1391					
81 495	6·8	14 54 58	+81 9	6·95	3
78 501	6·5	55 25	78 35	7·40	1
78 501	6·5	55 25	78 35	7·40	1
75 545	7·2	55 41	75 17	8·43	2
85 248	8·6	55 51	85 42	8·83	15
83 431	6·0	57 3	82 55	6·21	2
76 544	8·8	57 5	76 42	8·90	1
80 459	8·2	57 31	79 56	8·31	2
75 547	7·0	14 57 32	75 18	7·70	2
77 565	7·7	15 0 20	76 55	8·23	1
1401					
84 335	7·5	15 1 41	+84 20	8·07	3
88 90	8·9	4 50	88 24	9·50	12
76 548	8·0	6 9	76 45	9·09	1
86 221	8·1	6 19	85 54	7·88	34
77 571	7·8	6 19	77 45	7·75	1
77 572	8·3	6 45	77 1	8·80	1
84 339	8·4	7 13	84 25	9·33	2
79 458	8·6	7 15	79 34	9·02	2
84 342	8·9	8 21	84 20	9·59	2
76 551	8·0	8 24	76 22	8·20	1
1411					
75 554	9·0	15 8 27	+74 58	9·35	2
86 222	8·8	9 8	86 17	9·23	19
85 249	8·0	9 9	85 31	8·08	19
87 143	7·0	9 21	87 37	8·05	91
82 443	8·8	10 57	82 44	9·29	1
83 440	8·5	11 43	83 12	8·86	2
83 441	8·8	12 18	83 48	9·46	2
88 91	8·4	15 32	88 9	9·88	1
78 507	8·3	15 33	78 46	8·66	2
81 504	8·9	16 55	81 4	8·96	2

Dec. +75° to +90°.

B.D. No.	Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1421		h m s	° ′		
75 560	8·3	15 18 11	+75 37	8·69	2
77 582	8·2	19 48	77 33	8·32	2
75 561	7·7	20 6	75 13	8·36	2
78 510	7·2	21 30	78 45	8·60	2
77 585	8·0	24 29	77 0	9·01	1
82 454	8·8	25 57	82 20	9·56	1
85 257	9·0	26 29	85 7	9·25	3
81 510	7·8	26 36	81 24	7·99	2
80 474	8·6	26 50	80 49	8·72	2
87 147	7·9	27 13	87 23	8·24	90
1431					
84 345	8·3	15 29 23	+84 13	7·68	3
78 516	9·1	30 13	78 31	9·11	2
82 456	8·2	31 48	82 14	7·87	2
86 230	9·1	32 11	86 51	9·77	2
80 478	7·8	32 16	80 6	8·48	2
78 518	8·3	33 0	78 40	9·18	2
84 346	9·0	33 28	84 17	9·35	2
77 592	5·0	34 23	77 41	6·47	2
78 519	9·0	34 50	78 39	9·48	2
80 480	7·0	34 59	80 47	7·02	3
1441					
77 593	7·8	15 35 5	+77 6	8·30	2
80 481	8·3	35 12	80 47	7·90	3
81 517	6·8	35 57	81 6	7·59	3
76 563	7·5	36 49	76 47	7·54	2
87 148	9·1	37 0	87 48	9·52	5
79 470	8·0	37 54	79 32	8·76	2
77 595	8·0	37 58	77 10	8·12	2
82 463	7·5	38 9	82 36	6·98	2
76 566	8·5	38 12	76 22	9·12	2
81 518	9·0	38 59	81 23	9·11	2
1451					
84 348	8·8	15 39 39	+84 50	9·08	5
77 600	8·5	41 7	77 17	9·16	2
76 569	9·0	41 7	76 46	9·09	2
75 574	8·0	41 30	75 37	9·19	2
80 484	9·3	42 5	80 51	9·29	2
85 263	7·2	42 32	85 9	7·47	12
81 523	7·3	42 57	80 56	7·52	3
85 264	8·9	43 7	85 1	9·25	3
82 464	8·5	44 23	82 9	9·14	2
80 487	6·7	45 7	80 18	7·05	2
1461					
83 447	8·8	15 45 48	+83 8	9·49	2
77 607	8·3	46 46	77 31	8·53	2
83 449	8·9	46 59	83 33	9·59	2
78 527	4·7	47 37	78 6	4·54	2
77 609	7·8	47 47	77 27	8·73	2
76 573	8·2	48 7	75 55	8·93	2
80 489	8·0	48 45	80 26	7·95	2
88 92	9·2	49 15	87 54	9·71	4
85 266	8·8	49 50	85 33	8·79	15
75 575	8·5	50 12	75 35	9·22	2
1471					
81 530	8·4	15 50 45	+81 37	8·23	2
81 531	7·4	51 23	81 14	8·05	2
76 574	8·5	52 33	75 52	9·12	2
83 452	8·4	52 37	83 36	8·96	2
83 453	7·3	53 47	83 15	7·23	2
77 611	8·0	54 16	77 34	8·43	2
78 531	9·0	54 38	78 9	8·96	2
82 470	8·2	55 6	82 40	8·12	2
78 532	8·3	55 36	78 0	9·16	2
86 234	9·3	56 10	86 18	9·49	1

B.D. No.	Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1481		h m s	° ′		
76 577	8·4	15 56 50	+75 55	8·24	2
76 578	8·7	56 52	76 2	8·68	2
85 269	7·5	57 23	85 35	6·78	21
75 579	6·5	57 24	75 52	7·46	2
82 472	8·6	57 35	82 39	9·01	2
78 537	8·8	58 47	78 30	9·06	2
83 456	8·5	58 54	83 34	9·03	2
83 457	8·5	15 59 55	83 6	8·26	2
84 352	8·4	16 0 8	84 52	8·02	10
76 580	7·5	0 17	76 22	8·54	2
1491					
84 351	7·7	16 1 1	+83 55	7·14	3
81 536	8·7	1 10	80 55	8·56	2
81 538	8·0	2 35	81 7	7·88	2
80 497	8·7	2 59	80 31	9·21	2
76 584	8·4	4 24	76 24	9·63	1
84 354	9·3	4 40	84 11	8·89	2
78 539	9·3	5 8	78 44	9·38	2
76 587	9·0	5 22	76 20	9·22	1
87 151	8·9	5 29	87 45	9·11	31
83 464	9·0	5 45	82 59	9·04	2
1501					
77 616	6·0	16 6 50	+77 4	5·76	2
76 590	8·1	6 56	76 3	9·23	1
82 475	8·6	7 18	82 49	8·25	2
81 541	7·3	7 29	80 54	8·37	2
76 591	8·5	9 13	76 2	9·03	1
79 481	8·9	9 26	78 56	9·47	2
89 28	8·7	9 33	89 14	9·97	1
76 592	8·9	9 45	76 7	9·34	1
83 468	8·2	12 13	83 40	7·93	3
76 594	6·0	13 40	76 8	5·52	1
1511					
82 479	9·0	16 13 47	+82 44	8·73	1
78 549	9·0	13 50	78 22	9·91	1
75 586	6·8	15 3	75 27	7·53	2
81 542	8·5	16 0	80 57	8·45	3
81 543	8·2	17 52	81 24	8·63	3
82 481	8·5	19 30	82 20	7·88	1
86 242	9·0	20 9	86 3	9·10	14
76 596	5·3	20 25	75 59	5·55	1
76 597	8·8	20 46	75 54	9·25	1
83 475	9·1	21 23	83 36	9·44	2
1521					
88 96	9·3	16 21 49	+88 27	9·62	5
77 623	7·5	22 39	77 47	8·94	1
76 600	7·2	22 59	76 22	7·15	1
75 592	8·3	23 9	75 42	8·52	2
79 493	8·8	23 13	79 28	9·32	1
82 484	8·7	23 14	82 20	8·58	1
76 601	8·5	23 27	76 3	9·35	1
82 485	8·0	23 59	82 52	7·62	1
76 603	8·8	24 19	76 40	9·18	1
81 549	8·2	25 24	81 11	8·78	2
1531					
80 508	8·8	16 25 41	+79 56	9·65	1
79 495	8·7	25 45	79 7	9·72	1
79 496	8·7	25 48	79 26	9·08	1
76 606	7·5	25 58	76 40	8·82	1
80 509	8·7	26 49	80 16	9·05	1
75 596	9·0	27 22	75 9	9·29	2
84 359	8·7	29 14	84 2	8·70	5
76 609	8·5	29 48	76 42	9·37	1
81 552	8·5	29 50	80 57	8·65	2
84 360	8·5	30 10	84 47	8·18	9

1450. As one mass. Components $9^{m}\cdot2$, $10^{m}\cdot3$.

Dec. +75° to +90°.

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1541		h m s	° ′		
80 511	7·8	16 30 13	+80 34	8·41	1
76 611	8·1	31 6	76 54	9·28	1
79 499	9·0	31 13	79 29	9·03	1
79 498	5·5	31 18	79 11	6·11	1
76 612	8·0	31 30	76 27	8·78	1
84 361	7·2	33 37	83 55	7·08	3
86 244	8·7	34 50	86 26	...	...
77 627	6·5	34 56	77 39	7·38	1
82 492	8·8	36 15	82 6	8·60	1
80 519	7·0	37 45	80 0	7·25	2
1551					
77 628	7·8	16 37 50	+77 53	7·59	2
76 615	8·5	38 29	76 42	9·62	1
77 629	8·2	38 59	77 51	8·92	2
79 504	9·0	39 11	79 6	9·87	1
77 630	8·0	39 22	77 19	8·42	1
78 562	6·8	39 55	77 57	7·31	2
77 632	8·5	40 46	77 25	9·07	1
78 564	8·5	41 33	78 9	8·87	2
79 508	7·8	41 51	79 24	8·09	2
79 510	8·5	43 21	79 23	9·28	1
1561					
79 511	6·3	16 43 34	+79 6	7·41	2
78 565	8·0	43 53	78 3	9·01	2
85 275	9·3	46 35	85 30	9·73	1
77 634	6·0	47 33	77 41	6·38	2
85 278	8·7	49 33	85 49	8·62	25
79 515	8·0	50 3	79 41	9·10	2
78 568	8·4	50 34	78 4	9·25	2
82 496	8·5	51 48	82 32	9·41	1
75 605	7·0	52 37	75 33	7·71	2
82 497	8·3	53 56	82 1	8·67	1
1571					
79 517	6·8	16 54 6	+79 40	7·68	2
80 530	7·9	54 33	80 17	8·56	2
78 569	8·5	55 17	78 6	9·48	2
75 607	8·6	55 52	75 5	8·78	2
75 608	6·8	56 2	75 33	6·89	2
82 498	4·0	56 12	82 12	5·37	1
77 639	7·2	56 49	77 0	7·54	2
82 499	9·0	56 55	82 6	9·68	1
84 370	9·0	57 24	84 38	9·08	3
84 371	8·5	16 58 48	84 50	9·15	2
1581					
78 573	7·0	17 0 52	+78 6	8·37	2
77 641	6·5	0 55	77 48	6·55	2
79 527	8·8	1 20	79 6	9·37	2
76 627	9·2	2 22	76 15	9·55	1
75 612	6·5	3 32	75 22	7·11	2
81 568	7·3	4 46	81 0	7·37	2
75 613	5·8	4 48	75 26	6·34	2
78 580	7·0	5 15	78 14	8·44	2
77 642	7·8	5 18	77 45	8·33	2
88 100	8·8	6 8	88 10	9·15	24
1591					
83 498	9·2	17 6 39	+83 26	9·36	2
86 254	9·4	7 38	86 12	9·63	1
75 615	8·3	8 35	75 38	8·71	2
75 616	7·0	9 7	75 14	7·51	2
82 505	8·3	10 26	82 2	9·34	1
76 635	7·8	10 31	75 59	8·85	2
77 646	8·2	11 19	77 26	8·33	2
76 636	8·5	12 5	76 52	8·72	2
86 256	8·5	12 5	86 13	8·97	37
84 378	8·2	12 17	84 54	7·57	9

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1601		h m s	° ′		
84 377	9·3	17 12 33	+84 23	9·62	2
79 532	8·8	13 24	79 33	9·57	2
81 574	8·3	13 45	81 30	9·13	2
75 617	7·5	13 56	75 13	7·83	3
75 618	8·4	15 15	75 18	9·17	2
83 501	8·8	15 25	83 20	9·21	2
77 654	7·5	19 5	77 27	8·75	2
79 536	8·0	21 40	79 39	8·11	2
76 644	8·7	23 33	76 7	9·12	2
80 543	8·4	23 56	80 16	9·02	2
1611					
79 540	7·3	17 25 48	+79 24	7·29	2
82 518	8·5	25 59	82 26	8·92	1
79 542	8·5	26 4	79 28	8·60	2
83 505	8·7	27 11	83 25	8·94	2
80 544	6·2	27 12	80 13	6·94	2
76 647	7·0	27 22	76 8	8·38	2
78 595	9·0	27 57	78 29	9·40	2
83 506	9·0	28 9	83 7	9·38	2
81 584	9·2	28 19	81 11	9·37	2
84 383	7·7	28 37	84 42	7·90	6
1621					
82 521	8·5	17 29 21	+82 49	8·14	2
86 260	9·4	30 20	86 43	9·75	1
77 661	8·3	30 33	77 11	9·04	2
81 588	8·8	31 16	81 28	9·46	1
83 511	8·3	31 42	83 47	8·13	2
88 101	9·0	31 43	88 41	9·25	25
86 263	9·2	32 4	86 57	9·30	25
79 546	8·8	32 7	79 20	9·25	2
76 648	8·0	32 34	76 47	8·75	2
86 264	8·5	32 35	86 57	8·35	72
1631					
83 512	7·5	17 32 40	+83 25	7·81	2
75 634	8·3	32 54	75 42	8·37	2
81 589	9·3	33 12	81 7	9·77	2
84 385	8·8	33 59	84 28	9·19	1
82 523	9·0	34 29	82 41	9·24	2
82 524	9·1	35 42	82 2	9·65	2
77 664	9·2	35 51	77 10	8·54	2
76 651	8·5	36 2	76 22	8·88	2
77 666	7·8	36 37	77 24	8·49	2
80 549	8·3	36 45	80 16	9·52	2
1641					
88 102	9·0	17 42 6	+88 35	9·44	12
75 639	7·5	42 30	75 58	8·87	2
79 556	7·3	44 9	79 16	7·51	2
84 389	8·7	44 26	84 49	8·54	6
79 557	8·0	45 56	79 12	8·43	2
75 640	7·0	46 9	75 35	8·37	2
87 164	9·2	46 26	87 4	9·90	2
87 166	8·9	46 37	87 50	9·65	2
80 554	9·0	46 48	80 41	9·02	2
84 391	8·9	49 8	84 16	8·75	3
1651					
80 555	7·0	17 50 5	+80 19	8·37	1
76 663	8·5	50 19	76 31	9·06	1
88 105	8·5	51 33	88 44	8·83	90
87 168	9·3	52 24	87 58	9·85	3
77 670	7·5	52 59	77 3	7·76	1
80 557	8·9	53 5	80 58	8·94	3
78 612	8·0	53 6	78 25	9·12	1
88 104	8·0	53 52	88 15	8·20	91
76 667	5·2	53 56	76 59	5·48	1
79 564	7·5	55 35	79 21	7·60	2

1547. Algol variable. Elements 2419487·850 d. J. +1d·7012. E. Limits of magnitude 8m·40 and 9m·25.

1652. Double star. Components not separable.

Dec. +75° to +90°.

B.D. No.	Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1661		h m s	° ′		
80 560	9·1	17 55 44	+80 55	9·17	2
78 616	6·5	55 48	78 19	7·50	1
76 668	7·5	56 8	76 1	7·35	1
84 399	9·2	56 10	84 55	9·27	3
75 647	7·0	57 44	75 11	7·20	2
76 673	8·7	17 59 31	76 5	9·12	1
78 621	7·4	18 0 6	78 41	7·65	1
81 610	8·9	2 3	81 40	9·04	2
83 524	8·8	2 5	83 26	8·94	2
81 611	8·7	2 52	81 19	8·83	2
1671					
79 566	8·8	18 3 11	+79 50	9·48	1
87 169	8·1	4 23	87 25	8·22	85
76 675	9·0	4 25	76 1	9·17	1
86 269	4·5	4 33	86 37	4·47	69
81 612	8·9	4 56	81 35	9·35	2
84 404	9·0	6 21	84 43	7·98	3
75 655	6·5	6 31	75 47	6·87	2
79 569	8·4	6 49	79 48	9·12	2
85 294	7·5	7 10	85 41	7·50	29
84 405	8·4	7 19	84 24	8·93	3
1681					
79 570	6·5	18 7 32	+79 59	6·58	2
79 571	6·5	7 38	79 59	6·38	2
86 272	6·0	7 47	87 0	5·89	78
80 567	8·8	8 28	80 50	8·88	3
83 527	7·7	8 44	83 54	7·77	2
79 574	8·5	8 44	79 57	8·96	2
77 679	8·1	8 55	77 28	8·25	1
76 678	7·2	9 57	76 7	7·74	1
80 571	8·9	11 18	80 38	9·13	1
79 576	8·2	11 20	79 6	8·45	2
1691					
77 680	8·2	18 11 40	+77 56	9·06	1
84 408	9·2	11 41	84 38	9·45	2
77 681	7·5	12 24	77 34	8·09	1
77 682	8·5	12 49	77 32	8·43	1
81 618	9·4	15 0	81 27	8·81	2
81 619	8·5	15 2	81 28	8·00	2
75 662	8·8	15 45	75 9	9·38	2
87 173	9·0	16 35	88 0	9·81	1
81 621	8·7	19 7	81 26	8·41	2
82 539	8·7	19 45	82 22	8·73	2
1701					
84 409	9·0	18 19 51	+84 34	9·54	2
79 579	8·3	19 56	79 23	8·77	2
84 410	8·5	21 12	84 21	8·37	3
83 530	7·8	21 29	83 39	8·43	2
78 632	7·7	21 56	79 1	7·65	2
77 692	9·2	21 50	77 6	9·22	2
77 693	8·0	22 18	77 4	9·21	2
80 575	8·0	22 19	80 37	8·58	1
81 622	7·2	22 26	81 26	8·41	2
82 540	7·5	22 56	82 54	7·06	2
1711					
80 577	8·6	18 23 2	+80 33	8·57	1
76 685	8·7	23 48	76 33	8·95	2
84 412	7·5	24 33	84 37	7·30	6
75 667	8·4	24 43	75 30	8·18	2
75 668	8·0	25 44	75 48	8·34	2
86 275	8·2	26 10	86 32	8·46	59
79 584	8·2	26 30	79 58	9·04	2
76 688	9·1	26 57	76 56	9·08	2
78 637	8·5	27 15	79 0	8·81	2
75 669	8·7	27 24	75 19	8·85	2

B.D. No.	Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1721		h m s	° ′		
85 304	8·7	18 27 44	+85 26	9·12	8
83 533	8·8	28 5	84 0	8·91	2
82 542	8·4	28 19	82 49	9·68	2
77 696	7·7	29 2	77 30	7·74	2
79 585	8·5	29 6	79 6	8·65	2
83 534	8·5	29 52	83 46	8·53	2
82 543	8·5	30 3	82 15	9·04	2
79 586	9·0	30 11	79 6	8·60	2
79 587	7·0	30 36	79 9	7·42	2
82 544	8·5	30 38	82 49	8·40	2
1731					
77 697	8·5	18 31 52	+77 4	7·94	2
84 413	8·5	32 22	84 14	8·08	3
79 590*a*	7·5	33 4	79 33	7·17	2
76 694	7·8	33 17	76 9	8·42	2
80 585	9·0	33 32	80 43	9·50	1
77 698	9·0	34 11	77 11	8·96	2
77 699	6·5	34 35	77 28	6·59	2
79 591	7·8	34 36	79 43	8·44	2
78 640	9·1	35 4	78 15	9·22	2
82 546	8·0	35 7	82 38	8·93	1
1741					
81 632	9·2	18 35 32	+81 7	9·41	2
83 535	7·4	36 27	83 18	8·00	2
75 672	8·7	36 39	75 30	8·56	2
83 536	6·2	37 22	83 6	6·15	2
75 674	8·5	39 22	75 25	8·08	2
78 645	9·1	40 11	78 19	9·24	2
75 676	9·2	40 26	75 30	9·06	2
86 277	8·8	40 40	86 9	9·04	32
77 702	7·0	42 17	77 35	7·06	2
75 678	7·5	44 38	75 12	7·39	2
1751					
76 700	9·0	18 44 42	+76 17	9·03	2
75 680	8·7	46 20	75 46	9·23	2
84 423	8·6	47 24	84 32	8·58	4
86 282	7·0	47 44	86 35	7·87	60
88 110	8·8	48 34	88 38	9·00	91
86 281	9·0	49 1	86 12	9·55	4
75 682	5·8	49 36	75 19	5·24	2
78 654	8·8	49 57	78 16	9·07	2
80 591	8·5	50 11	80 12	8·56	2
81 642	9·1	50 15	81 27	9·01	2
1761					
79 604	6·5	18 52 42	+79 49	6·49	2
80 594	8·4	53 10	80 57	9·24	2
83 541	8·8	53 11	83 12	8·52	2
82 562	8·5	53 19	82 8	8·81	1
81 644	9·0	54 33	81 38	9·52	2
79 605	8·0	54 51	80 2	8·77	1
78 660	7·5	55 43	78 43	8·33	2
83 544	8·8	55 59	83 25	9·17	1
78 661	7·5	56 8	78 50	8·00	2
76 710	8·4	56 8	77 1	8·43	2
1771					
75 683	6·5	18 56 55	+75 39	6·17	2
86 286	8·8	18 57 55	86 15	9·32	8
85 320	8·9	19 0 34	85 29	8·86	22
84 426	9·2	1 7	84 25	8·86	4
76 712	6·5	2 9	76 55	6·76	2
83 547	6·5	4 2	83 46	6·76	2
80 603	8·2	4 4	80 48	8·06	1
82 572	6·0	4 41	82 14	6·65	1
79 610	8·8	4 50	79 14	9·14	2
80 604	7·0	6 4	80 18	8·62	2

1681–2. Images touching; measures unsatisfactory.

Dec. +75° to +90°.

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1781		h m s	° ′		
77 715	7·3	19 6 26	+77 31	8·65	2
78 671	8·8	9 38	78 36	9·18	2
77 717	8·5	10 35	77 16	8·92	2
85 324	9·0	10 45	85 28	9·46	2
88 111	8·8	11 8	88 10	9·29	21
79 614	7·5	11 23	79 29	8·55	2
82 578	7·7	11 41	82 31	7·62	1
76 717	5·5	12 50	76 24	5·44	2
75 690	8·0	13 0	76 1	8·36	2
81 653	8·7	13 19	81 30	9·00	2
1791					
80 606	7·8	19 13 37	+80 21	8·75	2
80 607	7·2	14 22	80 34	8·05	2
87 180	8·0	14 31	87 10	8·25	84
80 608	8·7	14 35	80 48	9·03	2
80 609	7·1	15 31	80 35	7·49	2
76 721	9·1	15 37	77 1	9·14	1
87 181	8·0	15 45	87 41	8·35	91
76 722	8·3	16 11	76 42	8·10	1
76 725	7·8	18 6	76 8	9·05	1
79 623	8·8	19 22	79 43	9·18	2
1801					
81 655	8·3	19 20 23	+81 6	8·45	2
86 290	8·8	20 28	86 35	9·12	19
76 726	9·1	20 42	76 31	9·26	1
84 436	9·2	21 21	84 26	9·05	3
76 731	7·6	21 23	76 26	7·67	1
88 112	6·5	22 29	88 59	7·69	92
79 625	9·0	22 32	79 19	9·05	1
76 732	7·3	22 36	76 36	8·21	1
76 733	8·0	22 46	76 17	8·22	1
81 659	7·9	24 6	81 28	8·06	2
1811					
78 676	8·1	19 24 7	+78 56	8·79	1
81 660	8·0	24 14	81 45	8·03	2
80 614	8·1	24 35	80 17	8·53	2
76 734	6·5	25 7	76 22	8·80	1
77 728	7·8	25 26	77 58	7·75	1
81 665	8·8	27 17	81 56	9·09	2
80 618	8·8	27 26	80 38	8·62	2
77 730	8·3	27 44	77 42	9·06	1
79 628	6·3	27 45	79 24	6·19	2
83 552	6·0	27 57	83 16	6·61	2
1821					
81 666	7·5	19 28 46	+81 36	9·17	2
81 668	8·3	30 27	81 32	8·91	2
79 629	8·0	30 27	79 34	8·21	2
76 742	8·7	32 47	76 31	8·91	1
79 632	9·0	33 20	79 57	8·92	2
85 329	8·4	33 54	85 53	8·76	30
83 556	8·7	34 3	84 5	8·58	4
77 734	7·0	34 9	78 3	8·01	1
K 3303	9·0	34 10	78 3	8·14	1
75 701	8·9	34 24	75 28	8·64	3
1831					
78 683	9·0	19 34 52	+78 12	9·20	1
74 829	8·5	35 29	75 7	7·52	1
85 330	8·9	35 43	85 53	9·13	26
75 702	8·5	35 45	75 23	9·20	3
76 745	8·7	36 47	76 15	8·92	1
77 736	7·8	37 54	77 50	9·03	1
79 638	7·5	40 0	79 56	8·58	2
86 297	9·0	40 55	86 44	9·23	19
76 750	8·4	42 11	76 11	8·69	1
76 751	8·5	42 28	76 19	8·15	1
1841		h m s	° ′		
76 752	9·0	19 42 42	+76 52	9·15	1
88 114	8·0	43 20	88 41	8·96	91
78 689	8·5	43 28	78 58	8·89	1
79 640	8·0	43 53	79 46	8·53	2
81 675	8·8	43 57	81 7	9·13	2
79 641	8·5	45 31	79 47	8·55	2
82 592	8·3	45 39	83 6	9·21	1
74 839	8·2	46 7	75 5	8·85	1
77 743	8·3	47 42	77 17	9·15	1
80 631	8·0	49 5	80 14	8·35	2
1851					
79 645	7·5	19 49 15	+79 17	7·65	2
75 711	8·5	50 8	75 37	9·09	2
79 648	7·0	51 42	79 12	8·22	2
76 758	9·0	52 28	77 0	8·99	2
80 633	9·1	52 49	81 3	9·49	1
75 714	8·5	53 25	75 8	9·02	2
84 445	8·5	53 47	84 31	7·93	7
87 185	8·9	53 50	87 53	9·27	24
88 115	8·8	54 4	88 34	8·90	91
76 761	9·0	55 22	77 2	9·08	2
1861					
78 694	7·5	19 55 35	+78 22	9·11	2
81 687	7·7	56 1	81 19	7·94	2
79 649	9·0	56 14	79 20	8·69	2
79 650	8·8	56 44	79 26	9·08	2
86 303	8·7	56 45	86 23	9·32	4
84 446	8·5	56 51	84 28	8·70	7
87 186	9·0	56 52	87 42	9·51	5
75 717	8·5	57 47	75 19	8·91	2
82 598	7·6	58 55	82 11	8·41	2
88 117	var.	59 2	88 50	8·76	91
1871					
75 718	7·2	19 59 23	+75 26	8·48	2
79 652	8·3	20 1 13	79 11	8·82	2
79 653	9·0	1 26	79 41	8·94	2
76 769	8·5	1 31	76 44	8·74	2
76 771	6·0	2 25	76 12	7·47	2
79 655	8·3	2 27	79 13	8·95	2
85 337	8·5	3 2	85 36	8·61	23
81 691	8·9	4 14	81 52	9·21	2
79 657	7·8	5 1	79 16	8·65	2
84 448	8·8	5 27	84 26	8·75	5
1881					
83 569	9·0	20 6 25	+83 59	9·23	4
75 721	8·8	6 30	75 13	8·92	2
85 339	8·7	7 18	85 46	9·45	2
79 660	6·5	7 38	79 24	7·28	2
80 644	8·3	8 23	80 24	8·93	2
76 778	9·1	9 20	76 21	9·17	2
82 608	8·5	9 58	83 8	8·22	3
77 762	7·7	11 27	77 32	7·19	2
75 726	8·0	12 8	75 57	8·72	2
77 764	*4·8	12 16	77 25	4·41	2
1891					
82 609	8·5	20 13 8	+82 32	8·43	3
85 340	7·5	13 37	85 28	9·02	13
84 451	7·0	14 0	84 23	6·71	6
81 698	8·6	15 31	81 9	8·92	2
81 699	7·5	15 33	81 55	7·54	3
84 455	9·0	15 37	85 3	9·08	6
80 648	7·8	17 58	80 9	7·71	2
79 668	7·0	18 11	79 20	8·18	2
83 572	8·5	18 27	83 53	9·13	2
76 792	8·6	18 51	77 6	8·98	2

1814. UX Draconis, 1912 Apr. 1^{d}·542. 1870. R Cephei. No evidence of variability in the observations. 1872. Components not separable; mags. 9^{m}·1, 10^{m}·2.

Dec. +75° to +90°.

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1901		h m s	° ′		
77 770	7·8	20 19 9	+77 43	8·12	2
80 650	6·8	20 9	80 13	6·55	2
75 735	8·5	20 17	75 27	8·83	3
80 651	8·7	20 26	80 16	7·92	2
79 670	8·9	20 37	79 43	9·24	2
75 737	9·0	22 12	75 47	9·04	2
84 461	8·5	22 49	84 47	8·49	10
80 652	8·4	22 57	80 50	8·50	3
84 462	7·0	24 28	84 14	7·29	4
84 463	7·2	24 31	84 49	7·33	10
1911					
75 739	7·3	20 24 50	+75 43	9·09	2
82 611	9·1	24 51	82 44	8·91	2
87 187	8·0	25 8	87 38	8·93	91
76 799	9·0	26 50	76 19	8·74	2
85 347	8·0	27 10	85 57	8·99	19
76 802	8·5	27 48	76 11	8·74	2
78 714	8·2	28 41	78 46	8·65	2
81 706	7·4	28 44	82 2	7·07	3
85 348	9·3	28 57	85 36	9·50	3
79 673	9·0	29 16	79 53	9·27	2
1921					
82 613	8·5	20 29 25	+82 31	7·98	3
75 742	8·5	29 42	75 49	9·01	2
79 675	7·3	30 34	79 53	7·14	2
88 118	9·0	32 39	88 15	9·61	5
83 586	9·3	33 1	83 14	9·17	2
80 657	7·5	33 9	81 6	7·28	4
82 617	7·0	34 23	82 51	7·44	3
80 659	5·8	34 32	81 5	6·25	4
80 660	6·1	35 15	80 44	6·68	2
80 662	9·0	36 11	80 47	8·87	3
1931					
81 710	8·5	20 38 38	+81 35	8·85	3
75 752	7·2	38 42	75 14	8·11	2
83 588	6·2	39 5	83 17	6·38	3
78 716	6·9	39 57	79 5	6·42	2
80 664	9·1	40 10	80 33	8·93	3
76 809	7·1	40 10	76 28	7·10	2
75 753	7·8	40 33	75 31	9·15	2
78 718	8·5	41 0	78 56	8·31	2
81 712	7·5	41 36	81 39	8·09	4
80 667	9·1	45 16	80 27	9·10	2
1941					
74 884	8·8	20 45 40	+75 3	9·22	1
75 755	8·7	45 59	75 13	9·02	2
85 352	9·3	47 58	85 40	9·58	2
82 627	8·6	48 6	82 41	8·24	3
75 756	8·7	48 6	75 37	9·21	2
78 727	7·8	48 32	78 52	7·96	2
81 718	6·0	49 51	82 10	5·72	3
85 354	8·0	50 5	85 18	9·03	12
80 670	8·8	50 33	80 42	9·21	2
75 760	8·3	50 44	75 23	9·10	2
1951					
85 355	9·1	20 52 5	+85 28	9·25	7
80 672	5·3	52 8	80 11	6·27	2
84 474	8·4	53 24	84 15	8·23	4
83 594	8·8	53 54	83 21	9·10	2
77 793	8·0	54 31	77 49	7·98	2
75 764	6·0	55 55	75 32	6·73	2
77 795	8·0	56 35	77 52	9·10	1
78 731	8·6	56 37	79 5	8·85	1
75 765	6·6	57 14	75 20	7·53	2
83 596	7·7	58 58	83 33	7·37	3

B.D. No.	B.D. Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
1961		h m s	° ′		
85 357	8·8	20 59 0	+85 11	9·26	3
81 725	8·0	21 0 39	81 25	8·22	2
76 824	8·2	1 37	77 4	7·69	1
78 736	8·2	2 28	78 54	8·40	2
79 694	9·0	3 41	80 6	9·35	1
78 737	9·0	3 59	78 55	9·46	2
74 902	8·0	4 0	75 8	8·36	2
75 770	8·0	4 4	75 13	8·06	2
78 738	8·5	4 22	78 54	9·11	2
78 739	9·0	4 28	79 9	9·19	2
1971					
87 192	9·3	21 4 43	+87 52	10·00	2
82 636	8·5	5 28	82 35	8·00	2
87 193	9·2	6 27	87 54	9·33	13
85 359	8·1	6 30	85 29	8·24	24
77 800	6·1	7 30	77 43	5·73	2
75 774	8·2	7 55	75 59	8·07	2
80 679	7·0	8 7	80 45	7·03	1
77 801	9·1	9 30	78 0	8·80	2
80 682	7·0	11 4	80 37	8·41	1
81 728	8·8	11 5	81 53	8·83	2
1981					
80 683	8·9	21 11 11	+80 59	9·14	1
81 729	8·7	11 15	81 56	8·57	2
78 742	7·5	11 22	78 15	7·22	2
75 778	6·8	12 57	75 54	6·80	2
78 744	6·8	13 49	78 34	6·87	2
79 699	8·5	15 20	79 56	8·41	2
76 831	8·9	15 23	76 11	9·01	2
76 832	8·8	15 48	76 13	8·80	2
86 318	8·0	16 22	87 8	8·48	89
75 781	8·4	16 29	76 7	7·85	2
1991					
80 688	6·5	21 16 46	+80 23	7·05	2
76 833	6·0	16 48	76 35	7·07	2
80 689	8·4	16 53	81 0	9·15	1
80 690	6·3	17 31	80 49	6·20	1
77 811	7·0	17 34	78 11	7·19	2
77 810	9·2	17 39	77 14	8·96	2
75 782	8·9	18 49	75 40	9·06	2
86 319	7·0	19 35	86 37	7·21	78
78 749	9·0	21 18	78 18	8·87	2
79 701	7·8	21 32	79 55	7·48	2
2001					
83 603	7·5	21 21 33	+83 50	7·83	2
81 735	7·8	21 43	81 20	8·71	2
87 195	9·3	22 10	87 29	9·45	5
81 736	7·9	22 46	81 36	8·30	3
81 737	7·5	23 0	82 5	8·00	3
76 836	6·5	23 17	76 40	6·44	2
85 361	9·0	23 21	85 15	9·16	8
75 787	6·7	23 26	76 7	7·08	2
75 788	6·8	24 46	75 32	7·97	2
81 739	9·2	25 38	81 37	8·97	2
2011					
80 695	8·9	21 26 2	+80 29	8·46	2
83 608	9·0	26 59	84 12	8·84	5
78 752	8·8	27 27	78 24	8·90	2
79 707	6·0	27 47	80 5	6·66	2
82 648	8·0	27 53	82 33	8·04	2
75 791	7·3	28 54	75 58	7·55	2
83 609	9·3	29 9	83 47	9·35	1
77 823	7·2	29 55	77 30	8·16	2
82 650	8·6	30 4	82 51	8·76	2
79 710	9·0	30 16	79 52	9·33	2

Dec. +75° to +90°.

B.D. No.	Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
2021		hr m s	° ′		
75 792	8·0	21 30 28	+75 52	8·60	2
81 742	8·0	30 51	81 18	8·48	2
82 651	8·5	30 58	83 8	8·52	2
81 744	9·2	33 34	81 45	8·92	2
78 758	8·8	34 13	78 28	8·80	2
83 613	8·6	35 24	83 24	8·45	2
80 700	8·2	37 23	80 43	8·72	1
79 713	9·3	38 46	79 25	9·21	2
83 614	8·4	39 32	83 30	8·11	2
75 797	8·8	41 11	75 53	8·92	2
2031					
82 657	8·5	21 41 51	+82 28	8·61	2
81 752	9·2	42 48	81 33	9·10	2
77 832	8·7	43 39	77 46	8·73	2
87 196	9·2	45 33	87 19	9·92	1
83 616	8·8	45 44	83 51	8·04	2
75 801	8·5	46 22	76 0	9·35	2
86 324	8·2	46 26	86 33	8·18	67
77 834	7·0	46 33	77 46	6·86	2
78 761	8·9	46 44	78 36	9·34	2
78 762	7·8	47 7	78 33	9·65	2
2041					
78 764	9·2	21 47 10	+79 9	8·71	2
83 617	8·9	47 19	83 52	8·95	2
86 325	8·3	47 38	86 25	9·73	1
		47 43	86 25	10·12	1
86 326	8·3	47 51	65 25	9·83	1
80 706	8·2	48 17	80 15	8·27	2
82 663	8·5	48 56	82 37	9·37	2
87 199	8·8	49 18	87 58	9·46	8
79 717	8·0	50 7	80 12	8·47	2
83 618	7·2	50 24	83 34	7·28	2
2051					
76 847	8·5	21 50 46	+76 14	8·96	2
85 367	8·5	50 53	85 59	8·62	34
77 836	7·5	50 57	77 18	9·15	2
77 837	8·5	52 44	77 52	8·64	2
78 768	6·5	53 19	79 5	7·87	2
77 838	8·6	53 24	78 3	8·37	2
79 720	8·2	53 27	79 29	7·99	2
82 667	8·7	54 37	82 59	9·08	1
85 370	9·0	55 16	85 31	9·40	4
83 620	9·0	55 26	83 34	9·12	2
2061					
85 371	8·5	21 55 48	+85 26	9·16	7
78 771	8·4	55 52	78 23	8·73	2
79 721	6·4	55 55	79 50	7·78	2
88 130	8·6	56 57	88 23	9·22	22
75 808	7·5	57 20	75 36	8·56	2
78 775	8·5	59 8	78 30	8·72	2
87 201	8·2	59 14	87 19	8·40	89
84 500	9·0	59 32	84 21	9·28	2
77 841	8·7	21 59 33	77 40	8·88	2
76 849	8·0	22 0 38	76 50	7·97	2
2071					
82 672	8·2	22 1 30	+83 1	7·72	2
82 673	7·5	1 49	82 23	7·50	2
82 674	8·0	1 56	82 23	8·16	2
85 376	8·5	2 3	85 23	8·70	12
83 622	9·0	3 48	83 52	8·77	5
75 814	8·0	7 9	75 59	8·64	2
81 767	7·7	8 58	82 10	7·71	2
78 780	8·8	9 29	78 22	8·83	2
74 955	8·8	9 56	75 9	8·82	1
75 818	7·0	11 29	75 58	8·04	2

B.D. No.	Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
2081		h m s	° ′		
78 782	8·4	22 11 39	+79 9	8·73	2
88 131	8·7	12 6	88 58	8·70	91
83 626	9·0	12 12	83 35	9·21	3
82 682	8·5	12 47	83 5	8·77	1
84 505	8·0	13 42	84 55	8·43	7
83 627	9·2	14 6	83 18	8·94	3
79 732	9·2	15 58	79 25	9·11	2
75 820	6·8	17 8	75 59	6·44	2
75 821	8·9	17 30	75 51	9·02	2
79 733	8·5	17 42	79 16	8·85	2
2091					
75 822	7·3	22 17 44	+75 31	7·32	2
79 735	8·9	18 25	80 6	9·52	2
75 823	7·8	18 27	75 37	7·51	2
79 734	8·3	18 30	79 24	8·36	2
78 785	8·0	18 33	79 11	9·10	2
76 857	8·2	19 13	77 4	8·04	1
75 825	8·7	20 33	75 38	8·75	2
83 630	7·0	20 54	84 0	7·22	5
85 383	5·0	21 19	85 36	5·26	29
85 384	6·5	21 41	85 43	7·46	28
2101					
86 332	9·0	22 22 1	+87 5	9·11	35
78 791	8·6	22 8	78 22	8·05	1
82 689	8·3	22 15	83 2	8·78	4
77 860	6·8	22 51	77 44	6·39	1
81 775	7·0	23 43	81 26	7·01	2
76 859	7·3	23 59	76 55	7·32	1
75 828	8·9	24 10	75 40	8·88	2
87 205	7·5	24 14	87 34	7·25	91
78 796	6·0	25 58	78 17	5·95	1
79 739	7·5	26 9	80 11	7·51	2
2111					
77 862	8·8	22 26 27	+77 51	8·76	1
77 863	8·0	26 44	78 3	8·24	1
75 832	7·7	27 8	75 43	8·93	2
84 509	7·2	27 30	84 33	7·80	5
78 801	5·7	29 0	78 19	5·51	1
81 781	8·5	29 7	81 39	8·52	2
76 863	8·7	29 17	76 29	8·40	1
75 836	5·7	30 31	75 43	5·69	3
88 133	9·2	30 53	88 44	9·48	6
76 864	9·0	32 9	76 51	9·07	2
2121					
77 866	8·5	22 34 24	+77 43	7·97	2
75 840	9·1	34 34	76 14	9·01	3
75 841	9·4	35 6	75 22	9·19	3
75 842	8·7	35 36	76 13	9·02	3
87 206	9·2	35 56	87 17	9·41	16
77 867	8·8	36 51	78 0	8·60	1
81 786	8·8	37 12	81 32	9·12	2
74 980	8·2	37 14	75 8	7·64	1
85 389	9·2	37 50	86 1	9·36	1
77 868	8·1	39 8	77 30	7·65	2
2131					
80 731	6·7	22 39 12	+80 52	7·26	3
75 847	9·0	39 14	76 9	9·17	2
79 749	8·8	39 46	79 41	8·47	2
76 870	7·5	39 48	77 5	7·09	2
79 748	9·3	39 48	79 36	9·45	2
78 806	8·9	40 0	78 19	9·01	1
75 849	9·0	40 16	75 36	8·93	2
75 850	9·1	40 55	76 5	9·19	2
76 872	9·0	41 24	77 4	9·10	2
82 698	9·4	41 43	82 15	9·31	2

Dec. +75° to +90°.

B.D. No.	Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
2141		h m s	° ′		
77 871	7·2	22 42 15	+78 0	7·02	2
86 335	8·0	42 19	86 46	7·87	83
76 874	8·5	42 53	76 41	8·12	2
81 788	7·7	42 55	81 22	8·49	2
79 750	7·0	43 11	79 55	7·56	2
81 789	8·0	43 11	81 58	8·60	3
85 390	8·7	43 18	86 8	9·02	29
76 876	8·7	43 45	76 49	8·44	2
82 700	8·0	43 54	82 45	7·24	3
78 808	9·0	43 59	78 22	9·30	1
2151					
81 790	9·0	22 44 10	+81 24	9·19	2
74 985	9·0	46 12	75 6	9·15	1
74 986	9·0	46 29	75 2	8·60	1
82 703	5·0	47 53	82 37	5·98	3
76 879	8·5	48 11	76 32	8·82	2
76 880	8·0	48 18	76 42	8·02	2
79 756	7·2	48 26	79 50	7·59	2
82 704	8·0	48 32	83 10	8·12	3
81 795	8·9	48 32	81 25	8·39	3
85 392	9·2	48 57	86 5	9·37	6
2161					
84 513	7·3	22 50 6	+84 15	7·72	5
75 858	7·7	51 41	75 48	7·28	2
78 813	7·7	51 43	78 22	8·26	2
78 814	8·5	51 50	78 32	8·03	2
77 877	8·0	52 18	77 19	8·69	2
79 758	7·8	52 26	79 42	8·60	2
76 885	8·3	52 31	76 58	8·38	2
80 737	8·9	53 10	81 8	8·79	2
75 862	8·0	53 23	75 24	8·73	2
84 516	8·0	53 29	84 31	8·44	5
2171					
84 517	6·5	22 53 29	+84 50	6·99	7
81 801	8·0	53 31	81 24	8·24	3
80 739	7·9	53 51	80 45	8·03	5
88 134	9·1	54 24	88 50	9·67	1
75 863	9·2	54 27	75 22	9·19	2
77 879	7·3	54 36	77 58	7·98	2
83 640	5·0	55 13	83 49	6·05	5
81 802	9·1	55 25	81 35	9·09	2
76 890	8·7	55 58	77 3	8·92	2
80 743	9·0	56 31	80 45	8·99	2
2181					
78 818	9·3	22 56 42	+79 12	9·37	2
82 707	8·5	56 43	82 31	9·13	2
75 865	9·1	56 54	75 47	9·25	2
79 759	7·5	57 24	79 48	7·96	2
75 867	7·5	58 11	75 35	7·94	2
76 892	7·3	58 25	76 20	7·62	2
76 893	8·2	59 18	76 24	7·95	2
79 761	7·2	59 32	80 15	6·68	2
75 869	8·7	22 59 42	75 58	9·05	2
79 763	9·2	23 0 37	79 45	8·90	2
2191					
76 764	9·2	23 1 23	+80 12	9·15	2
81 806	8·5	1 36	81 19	9·18	2
74 1002	7·3	3 11	75 2	6·53	2
77 891	8·5	4 22	77 22	8·90	2
79 768	7·7	5 15	80 6	7·56	2
79 769	7·5	5 29	80 2	7·10	2
84 523	8·4	7 18	85 11	8·59	14
81 810	8·1	7 28	82 3	8·21	3
76 900	8·9	7 30	76 38	8·77	2
75 871	8·5	7 40	75 29	8·91	2

B.D. No.	Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
2201		h m s	° ′		
80 752	9·0	23 8 48	+80 28	8·54	2
81 812	8·3	9 3	81 16	8·24	2
80 754	9·0	9 7	80 49	8·74	2
78 823	8·5	9 21	79 5	8·39	2
78 824	8·8	9 36	78 29	8·97	2
77 894	8·3	9 48	77 31	8·70	2
81 814	8·0	10 23	81 51	7·79	2
80 755	8·5	10 32	81 14	8·53	2
79 772	8·7	10 53	79 20	8·32	2
89 38	9·0	10 57	89 16	9·50	14
2211					
77 895	8·4	23 11 16	+77 24	8·59	2
76 904	7·8	12 23	76 14	7·96	2
78 825	7·5	12 46	78 41	7·66	2
77 896	7·3	13 9	77 36	7·36	2
83 647	8·0	13 11	83 42	7·42	4
76 905	9·0	13 24	76 30	8·99	2
82 712	9·0	13 28	82 54	9·30	1
75 876	9·0	13 32	75 59	8·86	2
79 776	8·5	14 20	79 35	9·02	2
83 648	9·2	14 55	83 59	9·42	1
2221					
80 758	8·9	23 15 4	+80 53	8·97	2
79 777	7·8	15 10	79 20	6·93	2
81 815	8·8	15 35	81 38	9·49	2
81 816	8·1	15 35	81 46	8·32	2
78 826	7·7	16 15	78 27	8·11	2
76 908	8·5	16 37	76 22	8·88	2
76 910	8·5	17 2	76 31	9·14	2
76 911	8·0	17 19	76 31	7·69	2
81 818	8·5	18 1	81 18	8·38	2
74 1018	8·0	18 14	75 14	8·44	2
2231					
85 398	8·5	23 19 9	+85 31	9·28	4
76 914	8·7	20 17	76 31	9·12	2
		20 18	76 31	9·16	2
76 915	7·9	20 26	76 58	7·88	2
80 764	9·1	22 59	80 23	9·10	1
76 917	9·2	23 4	76 19	9·07	2
79 781	8·8	23 8	79 37	8·92	2
80 766	8·7	23 29	81 8	9·15	2
78 834	8·0	23 51	78 59	8·23	2
78 835	7·5	23 58	79 15	7·50	2
2241					
82 720	9·2	23 24 11	+83 13	9·09	2
85 399	7·5	24 23	85 52	6·64	27
75 880	8·8	25 16	76 5	8·62	2
74 1023	9·5	25 16	75 1	9·20	2
85 400	8·0	26 17	85 27	8·07	21
79 782	9·0	26 20	79 21	9·04	2
77 908	7·0	26 50	77 21	6·99	2
83 657	9·3	26 56	84 0	9·05	2
76 924	8·5	27 10	77 0	8·63	2
80 770	8·2	27 18	80 27	8·03	2
2251					
85 401	8·0	23 27 30	+86 0	7·32	32
75 881	9·2	27 36	75 26	9·04	2
86 344	6·0	27 49	86 45	5·75	80
77 909	6·8	27 51	77 16	6·82	2
75 882	9·0	29 26	76 4	8·92	2
79 784	9·3	30 19	79 28	9·20	2
85 403	7·8	30 23	85 38	6·94	26
75 885	9·2	31 18	76 6	9·12	1
78 841	9·0	31 31	79 7	9·10	2
79 785	8·8	31 41	80 2	8·80	2

2176. As one mass. Components $8^{m}\cdot5$, $9^{m}\cdot2$.

Dec. +75° to +90°.

B.D. No.	Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
2261		h m s	° ′		
79 786	8·2	23 32 12	+79 54	9·46	2
80 776	8·3	32 29	80 57	8·61	2
83 660	9·0	33 7	83 36	8·78	4
82 728	7·5	33 14	82 39	8·27	1
79 787	9·0	33 30	79 22	9·64	2
84 533	8·7	33 58	84 37	8·20	5
80 778	8·5	34 5	80 47	9·34	2
76 926	9·0	34 22	76 16	9·03	2
76 927	8·8	34 27	76 54	8·52	2
79 788	9·1	34 28	79 26	8·99	2
2271					
74 1030	9·0	23 34 36	+75 10	8·62	2
76 928	3·5	35 14	77 4	4·58	2
77 914	9·0	35 21	77 18	9·05	2
74 1033	8·0	35 33	75 12	7·41	2
79 790	8·2	35 45	79 16	7·77	2
75 889	8·3	35 59	75 20	9·16	2
81 827	8·3	36 35	81 26	9·52	2
74 1034	8·0	36 53	75 2	8·05	2
82 733	8·5	37 24	82 19	9·01	1
80 780	7·8	38 49	80 45	7·50	2
2281					
75 891	8·3	23 39 8	+75 28	8·03	2
84 536	8·2	39 25	84 55	8·28	11
75 893	8·6	40 39	76 7	7·96	2
77 922	8·9	41 0	78 0	8·68	2
84 538	9·0	41 5	84 46	9·22	3
82 735	8·2	41 21	82 15	8·48	1
80 783	8·7	41 23	80 38	9·49	2
86 346	9·3	41 53	86 48	9·55	3
80 784	8·0	42 21	80 49	7·82	2
83 663	9·1	42 29	83 30	8·96	2
2291					
76 931	9·0	23 42 45	+77 11	9·10	2
87 217	8·5	42 52	87 47	8·71	91
79 793	8·3	43 40	80 1	8·13	2
84 539	8·1	44 2	84 31	8·26	4
81 832	8·8	44 2	82 14	8·67	2
88 139	9·0	44 13	88 17	9·37	14
82 736	8·5	44 38	82 26	8·41	1
74 1042	8·5	44 48	75 12	9·24	2
82 740	9·0	46 35	82 21	9·23	1
77 926	8·9	46 43	77 30	9·23	1

B.D. No.	Mag.	R.A. 1900·0.	Dec. 1900·0.	Photog. Mag.	No. of Plates.
2301		h m s	° ′		
76 934	6·9	23 47 9	+77 3	6·72	2
81 838	8·0	47 23	81 17	8·51	2
76 935	8·7	47 53	77 8	8·47	1
79 796	8·3	48 7	79 17	7·98	2
88 141	9·5	48 43	88 59	10·05	1
75 896	8·7	48 52	75 22	8·42	2
75 897	8·4	48 55	76 2	8·12	2
85 406	8·8	50 52	85 21	8·44	18
77 929	7·8	50 52	77 22	8·47	1
85 407	9·5	50 54	86 13	9·60	1
2311					
82 743	var.	23 51 45	+82 38	6·58	1
78 851	7·8	52 12	79 12	7·77	2
75 901	7·8	52 27	75 45	7·58	2
76 941	8·3	52 38	77 0	8·31	1
88 142	9·4	52 40	88 53	9·93	1
80 791	8·4	52 55	80 48	9·04	2
75 902	9·1	52 55	76 15	9·17	2
76 942	8·6	53 41	76 42	8·94	1
78 852	9·4	53 59	78 26	9·23	1
76 944	9·0	54 44	76 45	8·84	1
2321					
85 409	8·0	23 54 46	+86 9	6·59	37
76 947	9·4	56 2	76 39	8·99	1
76 948	9·0	56 12	77 5	9·22	1
86 347	8·6	57 19	86 29	7·73	49
82 748	7·0	57 35	82 25	7·03	1
79 799	7·5	57 37	79 44	7·76	2
75 906	8·5	58 4	75 45	8·24	2
81 841	9·2	58 7	82 6	8·88	2
78 854	9·2	58 25	78 44	9·03	1

2311. V Cephei, 1912 Jan. 27^{d}·392.

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